OneSAF Objective System (OOS) Behavior Model Verification



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14. ABSTRACT

The Army's One Semi-Automated Forces (OneSAF) Objective System (OOS) is a composable, next-generation computer generated forces (CGF) that has been designed to represent a full range of operations, systems, and control processes from the entity level to brigade level. Its development has leveraged the ever-increasing computing power available today to represent highly-complex battlefield phenomena, particularly entity and unit behaviors.

In the fall of 2005, the Product Manager (PM) OneSAF asked the United States (US) Army Training and Doctrine Command (TRADOC) Analysis Center (TRAC) in Monterey, California (TRAC-MTRY), to develop and execute quantitative and qualitative tests to verify the orderable, composite behaviors within OOS. As a result, we developed and executed a unique process to verify those behaviors under tight resource constraints. We developed an overall behavior verification methodology, a test design construct, a verification tracking database, and a detailed reporting procedure. We then executed the verification process on OOS behavior models and provided valuable feedback to PM OneSAF. Our methodology and test designs allowed us to evaluate the behaviors thoroughly with a minimum number of scenarios. Additionally, we devised a process to verify traceability within the documentation from requirements to implementation. Our work led to a follow-on effort to automate the verification process for OOS.

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Executive Summary

The Army's One Semi-Automated Forces (OneSAF) Objective System (OOS) is a composable, next-generation computer generated forces (CGF) that has been designed to represent a full range of operations, systems, and control processes from the entity level to brigade level. Its development has leveraged the ever-increasing computing power available today to represent highly-complex battlefield phenomena, particularly entity and unit behaviors.

In the fall of 2005, the Product Manager (PM) OneSAF (then-LTC John Surdu) asked the US Army Training and Doctrine Command (TRADOC) Analysis Center (TRAC) in Monterey, California (TRAC-MTRY), to develop and execute quantitative and qualitative tests to verify the orderable, composite behaviors within OOS. As a result, we developed and executed a unique process to verify those behaviors under tight resource constraints. We developed an overall behavior verification methodology, a test design construct, a verification tracking database, and a detailed reporting procedure. We then executed the verification process on OOS behavior models and provided valuable feedback to PM OneSAF. Our methodology and test designs allowed us to evaluate the behaviors thoroughly with a minimum number of scenarios. Additionally, we devised a process to verify traceability within the documentation from requirements to implementation. Our work led to a follow-on effort to automate the verification process for OOS.

As the Army's simulation of choice for brigade-and-below operations, the use of OOS throughout the Army will continue to increase. Since OOS is designed to support all Army modeling and simulation (M&S) communities, its impact on the warfighter cannot be overstated and will directly affect the equipment, support, and training warfighters receive. Ensuring that the behavior representations within OOS execute properly, the focus of this study, is essential to the successful implementation of the system.

The methodology and tools developed as part of this effort have a number of desirable characteristics. First, they are interoperable, both within the Army and across Joint M&S. The methodology and tools are not specific to OOS and can be used to facilitate the verification of behaviors within simulations throughout the Department of Defense. By design, the methodology and tools are reusable for behavior representations within any model or simulation.

Our effort was innovative and advanced the state-of-the-art for verification and behavior modeling. While there is a large compendium of best-practices for verification, there was not

anything specific for the application to behavior modeling, a relatively new concept in simulation development. Thus, a unique methodology had to be developed to meet this niche need.

Finally, our effort saved, and can continue to save, government resources. First, our process demonstrated sound behavior test designs using a minimum number of scenarios, thus saving both time and money. Additionally, our work facilitated improvements to OOS early in its development lifecycle that would be much more costly if done later. Feedback from PM OneSAF and others involved throughout the course of the project praised this work for providing a clear path forward, saving time and manpower, and providing useful insights into improving OOS.

Section 1 – Introduction

1.1. Overview

The One Semi-Automated Forces (OneSAF) Objective System (OOS) is the first set of simulation products to be developed through the formalized Army acquisition process. Randolf and Sagan (2003) provide a concise general description of OOS in the following quote.

OneSAF is a next-generation Computer Generated Force (CGF) that can represent a full range of operations, systems, and control processes from individual combatant level and platform level to fully automated BLUFOR battalion level and fully automated OPFOR [opposing forces] brigade level. OneSAF is not a single product or system, but rather, a set of products each consisting of a set of interacting components and tools. These components provide overlapping functionalities, which meet the various Object Oriented System (OOS) compositions. They also interact with data and meta-data housed in repositories. (p. 6)

At the initiation of this research effort, the OOS main development phase was drawing to a close with the program preparing for project release. Prior to its release, the program was required to pass the government acceptance testing (GAT), scheduled for summer, 2006. In October, 2005, in advance of the GAT, LTC John Surdu, PM OneSAF, requested that the US Army Training and Doctrine Command (TRADOC) Analysis Center in Monterey, CA (TRACMTRY), develop and execute quantitative and qualitative test designs to verify that the orderable composite behavior models in OOS performed according to their design specifications.

In this report, we begin with a description of the problem background, including a general overview of the OOS model with focus on its behavior modeling functionality; more detail concerning our problem scope; and a summary of related efforts. The subsequent portion of the report will lay out the methodology we developed to conduct our verification and will include examples. We then briefly describe our general results and the challenges we faced. At the conclusion of the report, we describe the direction of our continued work and conclude with a summary of our efforts.

1.2. Problem Statement

One of the unique aspects of OOS is its behavior models. Although the behavior model functionality is designed to allow the user to develop his own behaviors as necessary, the OOS development team created a set of 51 orderable composite behaviors representative of the most-likely tasks that a unit or entity might be required to perform within a normal mission. Our task was to evaluate and report on the performance of these composite behavior models. Initially, our guidance was to evaluate as many composite behaviors as possible in advance of the GAT, originally scheduled for January, 2006. With the postponement of the GAT, we were given an extension to continue work until June, 2006. Even with the extension, the timeline and our available resources severely constrained the scope of our research.

The PM OneSAF was asking us to conduct a *verification* of the composite behavior models. According to Department of the Army Pamphlet 5-11 (1999), verification is defined as "the process of determining that an M&S [model and simulation] accurately represents the developer's conceptual description and specifications" (p. 7). Thus, we were not to conduct validation, which is "the process of determining the extent to which an M&S is an accurate representation of the real world from the perspective of the intended use of the M&S" (p. 7). As we will discuss later, making that distinction proved to be challenging when information about the behavior's "conceptual description and specifications" was insufficient.

1.3. Problem Scope

1.3.1. Limitations

- TRAC-Monterey did not have enough resources to verify all 51 composite behaviors.
- Documentation of behavior implementation was incomplete, which limited our ability to determine with certainty the required behavior performance.
- For any given behavior, there were too many potential inputs to test each possible combination.
- The data collection functionality within OOS was not mature enough to collect all of the output data required.

1.3.2. Assumptions

- Developing a behavior verification methodology and verifying a subset of the original
 51 behaviors would provide value to the PM OneSAF team and the necessary
 foundation to continue behavior verification beyond our efforts.
- Documentation, in conjunction with OOS development team consultations, provided sufficient information to verify behavior performance.
- Testing a representative sample of scenarios for each composite behavior is sufficient to verify behavior performance.

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Section 2 – Background

2.1. OOS Behavior Modeling Functionality

OOS behavior models implement typical decision processes used within a military framework, and thus "provide command and control of equipment and unit models during simulation execution" (Henderson & Granger, 2002, p. 1). Therefore, they provide a means to automate standardized decision processes in order to reduce or remove user input during simulation execution. The models are able to evaluate environmental and situational stimuli and cause the entities or units to react accordingly.

There are generally two main types of behavior models – primitive and composite. Henderson and Granger (2002) define primitive behaviors as "simple chunks of doctrinal functionality from which more complex behavior models are built" (p. 1). These are coded behavioral aspects that directly control the simulation's physical models and agents. They define composite behaviors, on the other hand, as "complex behavior models and are composed of primitive behaviors and other composite behaviors" (p. 2). Composite behaviors are not code themselves, but "are defined in data files that conform to a [pre-defined] syntax" (p. 2). It is the *composite* behavior models that were the focus of this research.

The graphical user interface (GUI) that allows a user to develop composite behaviors is called the Behavior Composer Tool, shown in Figure 1. Henderson and Granger (2002) describe the Behavior Composer as:

...a novel graphical user interface paradigm that enables users to construct composite behaviors by selecting composition elements from a toolbar, and then placing them on a drawing canvas. The Behavior Composer does not require the user to write source code or even understand the XML [extensible markup language] file format of the behavior descriptions it produces" (p. 7).

While our research did not require actual behavior construction, we often explored the Behavior Composer to learn more about the intent behind the implementations of particular behaviors.

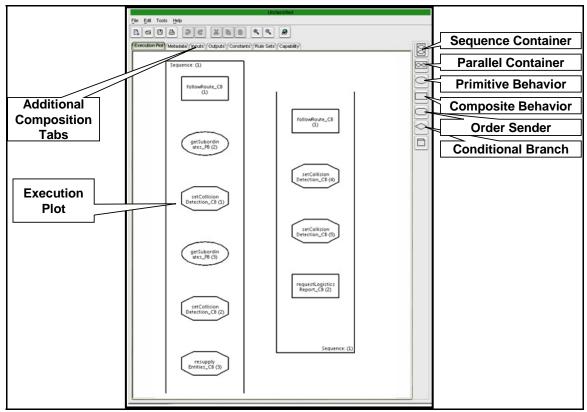


Figure 1. OOS Behavior Composer Tool.

Another aspect of the OOS behavior model implementation is the use of behavior models in the simulation. First, we must differentiate between orderable and reactive behaviors. Orderable behaviors are those behaviors that can be assigned to a unit or entity by the user during scenario development. A reactive behavior cannot be assigned, but can be enabled or disabled within an orderable behavior. Reactive behaviors define a standard reaction to particular stimuli (e.g., reacting to enemy fire). Because the occurrence of these situations cannot be predicted, reactive behaviors cannot be guaranteed to occur within a normal mission sequence, as orderable behaviors can. These two types of behaviors provide the capability to define the mission from start to finish, while still allowing simulation entities to react to unpredictable events.

When creating a scenario in OOS, the user assigns each unit a set of orderable behaviors by mission phase in the Mission Editor portion of the main interface, known as the plan view display (PVD), which is shown in Figure 2. When a behavior is assigned, the user edits its parameters through a set of GUIs, which will be discussed later in the report.

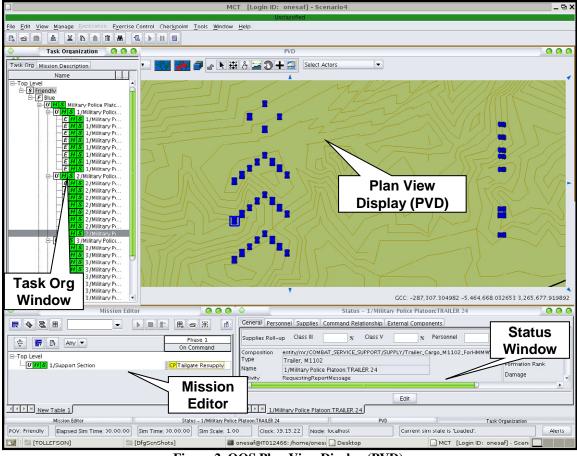


Figure 2. OOS Plan View Display (PVD).

2.2. Background Research

While previous combat simulations have had some behavior modeling capability, we could find no established verification processes specific to behavior models. Additionally, behavior model verification had not received the attention during OOS development that physical model verification had. In fact, only one other organization was working on a similar task. TRAC-White Sands Missile Range (TRAC-WSMR) initiated a primitive behavior model verification effort in late summer, 2005, at nearly the same time we had. Thus, our first step was to develop a methodology that we could use to conduct the verification. While there was little documentation concerning behavior model verification, we did find literature and previous research that addressed verification principles in general.

In October, 2005, an OOS development and training team traveled to our site to install the software and provide training. The training team brought with them a recommended approach for the verification effort that had been developed internally by PM OneSAF. Their

input was quite valuable for determining the types of information that would be most useful to their development effort and served as the foundation upon which we built our methodology.

Our second source of information was the VV&A Recommended Practices Guide (2000) downloaded from the Defense Modeling and Simulation Office (DMSO) website. The acronym VV&A stands for verification, validation, and accreditation. The guide describes the verification (and validation) processes and best practices from industry, the Department of Defense, and academia, with particular application to combat models and simulation. From this document, we were able to survey the large number of techniques available and extract those that were applicable to our work.

Our third reference was the *Models Development Behavior Verification Test Plan* (2004) developed by the Science Applications International Corporation (SAIC). Unfortunately, while the document did give a general framework for the conduct of verification, it provided little information concerning the methodology for selecting the test scenarios, nor what the outputs should be for each of the scenarios. In fact, when we tried to run these test scenarios and collect the data, we were not even able to load the files that were designed to be used in conjunction with the document. Additionally, the list of behaviors did not correspond to the list given to us by the OOS team, largely because the last update to the document occurred during the Block C release, not the Block D release we were testing initially. Therefore, while we did use the document to provide some information about potential testing scenarios, we based very little of our methodology on it.

Our fourth source of information was the work being done simultaneously by TRAC-WSMR. Their effort centered on the verification of the primitive behaviors, whereas our effort focused on the composite behaviors. Their selection of composite behaviors to execute in scenarios was based upon the primitives they contained, not the composite behaviors themselves. We referred to their methodology to make sure we accounted for overlapping aspects, and compared our results to identify significant differences; however, we were unable to base our methodology on theirs.

Finally, we consulted the US Army Materiel Studies Analysis Agency (AMSAA), which was simultaneously conducting verification of the *physical models* within OOS. While the focus of their effort was on an entirely different aspect of the simulation, their approach for selecting the design points in their test designs was valuable.

Section 3 – Methodology

We developed a methodology that would ensure a thorough verification of the composite behavior models, while still allowing us to address as many behaviors as possible within our resource constraints. After our initial development of the methodology, we continued to refine its processes even after we had begun verifying individual behavior models. Nonetheless, the overall methodology remained unchanged and is shown in Figure 3.

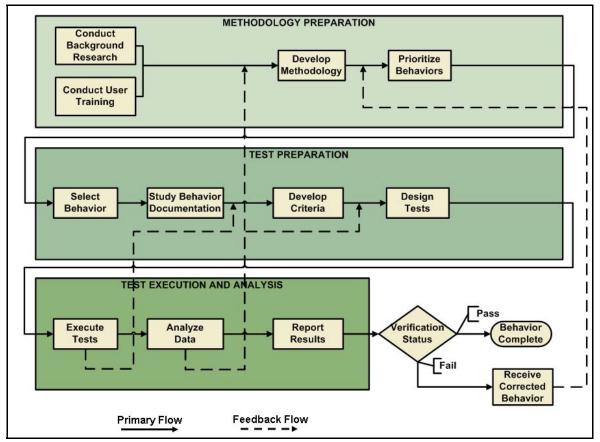


Figure 3. Behavior Model Verification Methodology.

3.1. Behavior Prioritization

Our first step was to prioritize the list of composite behaviors for verification and to update the list as required. The OOS team, during their onsite training visit, provided us an initial prioritized list of 51 composite behaviors, included in Appendix A, which served as our base document. The prioritized list did not change throughout the conduct of our research; however, we had to omit some behaviors whose documentation was not sufficient enough to conduct verification.

3.2. Behavior Selection and Documentation

We selected a behavior from the prioritized list and then reviewed its source documentation. The documentation review was essential, since verification requires a complete understanding of the developer's conceptual description and specifications in order to evaluate its implementation.

3.2.1. Documentation Description

Our primary source of information was the behavior model documentation. The OOS developers created these documents as part of their knowledge acquisition / knowledge engineering (KAKE) process. Behavior model KAKE documents attempt to capture behaviors in terms of the problem space (the description of the real world) in a way that facilitates the conversion of reality into software models (the solution space). While it is beyond the scope of this report to describe the OOS KAKE process, we will briefly describe the key documents that were central to our research. The reader can find more information about the KAKE process in Randolph and Sagan (2003).

The primary problem-space documents were the Task Descriptions (TDs). These documents describe the Army Universal Task List (AUTL) tasks in a way that facilitates their representation in composite behavior models. The AUTL is a comprehensive list of tasks that the Army is required to perform in support of its mission. There is a one-to-one mapping of TDs to AUTL tasks, but not from composite behaviors to TDs. In other words, one cannot necessarily trace an implemented composite behavior in OOS directly to a single TD. The TD is a problem-space document, meaning that it attempts to describe actual behaviors in a detailed manner that can then be implemented in software. Therefore, it cannot serve as a primary reference document for verification because it does not necessarily match how the behaviors it supports are actually implemented. We did refer to the TDs occasionally to see if they could clarify gaps or misunderstandings encountered in the solution-space documentation, particularly in terms of nomenclature.

Another set of problem-space documents are the Process Step Descriptions (PSDs), which further decompose and describe component sub-tasks of the AUTL tasks. A single PSD may describe a sub-task which is shared by multiple AUTL tasks. Although the PSDs seem to represent the basic 'building blocks' of the AUTL tasks, there is no one-to-one mapping of PSDs to the OOS primitive behaviors, as might be expected.

The Behavior Process Documents (BPDs) represent the final set of problem-space documents. They describe real-world behaviors that may require representation as composite behaviors but have no associated AUTL tasks. Thus, they are used to fill the modeling gaps left by the AUTL. Again, these do not necessarily have a one-to-one correspondence with the implemented composite behaviors.

Modeling Notes are used by the software engineering team to record questions concerning the problem-space documentation and to request clarification from the behavior subject matter experts (SMEs). The answers are then recorded as well. This class of documents was sometimes useful for determining the intent behind the implementation of particular composite behaviors.

The primary solution-space documents are the Use Cases. These documents describe the actual implementation of the composite behaviors, and, thus, there is a one-to-one mapping of Use Cases to composite behaviors. Although titled "Use Case" on the actual documents, the OneSAF team often referred to them as "Design Documents," which is more descriptive of their function. The Use Cases can be considered the "developer's conceptual descriptions" of the composite behaviors and were thus the primary source of information for our verification efforts. They have as their sources the TDs, but may or may not reflect the same logic as that included in the TDs. Since there is not a one-to-one mapping of TDs to composite behaviors and their Use Cases, most Use Cases referred to numerous TDs. Unfortunately, the actual implementation of the composite behavior models was often not sufficiently documented in the Use Cases, which led to some significant challenges, which we will discuss later in the report.

3.2.2. Other Sources

If the documentation failed to present a conceptual model complete enough to conduct verification, we consulted members of the OOS development team. If necessary, we were able to consult directly with the software engineer who implemented the behavior. We preferred to do this via email in order to maintain a written log of the questions we asked and the answers we received for future reference. Another source of information was our own expertise in Army operations and combat simulations; however, we had to be very careful not to make assumptions about how the behavior *should* perform, which is a validation issue.

3.3. Evaluation Criteria

Once we felt that we had a sufficient understanding of the intended implementation of the composite behavior model, we selected the criteria that we would use to evaluate performance. Throughout the following discussions, we will use the Tailgate Resupply composite behavior as our example to highlight the application of our methodology. In that behavior, the unit that is given the task, called the supplying unit, moves to a logistics release point (LRP – the location where the resupply operation will take place); supplies each of the designated vehicles there; and then moves to a return location (which is not necessarily its original location).

3.3.1. Behavior Model Input Parameters

Before we discuss the actual selection of criteria, we first provide a brief overview of the behavior model parameter inputs. When a user assigns a composite behavior to a unit or entity, a dialogue window opens prompting the user to enter three types of parameters: required, optional, and rules of engagement (ROE). An example of the Tailgate Resupply behavior dialogue windows for each of the three types of parameters is shown in Figure 4.

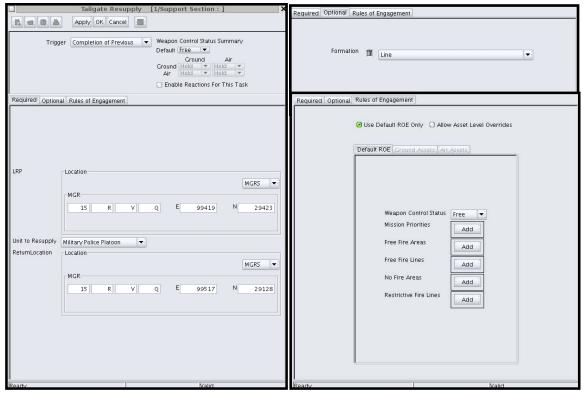


Figure 4. Example Behavior Input Parameter GUI for the Tailgate Resupply Behavior.

In our Tailgate Resupply example, the required inputs are the LRP location, the unit to resupply, and the return location. The only optional parameter is the formation in which the resupplying unit will move. The ROE parameters are identical for all behaviors and include settings for weapons control status (WCS), mission priorities, and fire control measures.

3.3.2. Criteria Selection

To select the behavior evaluation criteria, we first looked to the input parameters. At a minimum, each input parameter was a criterion to be evaluated to ensure that the input value properly affected behavior execution. Thus, for the Tailgate Resupply behavior, we were interested in ensuring that the supply vehicles moved to proper location and in the correct formation, and that the proper units were resupplied (particularly in cases where multiple units are located in the vicinity of the LRP). Additionally, there were often other criteria that were not suggested by the inputs, but were still critical to evaluate. In our example, we were also interested in the amount of supplies delivered and received, as well as the time it took to execute the transfer.

To evaluate the criteria, we used both qualitative and quantitative measures. Many of our measures were qualitative for two reasons. The first is that the data collection functionality of the simulation (including basic data logging) did not work properly in the model releases we used. The second is that many of the criteria could be evaluated visually on the PVD during execution (e.g., the formation in which the unit moved). Despite the fact that the data collection functionality was not working, we were still able to collect quantitative data from the Status Window in the PVD (see Figure 2). The Status Window shows, for each unit or entity, nearly real-time information, such as speed, orientation, levels of supply, location, etc. Thus, we were able to pause the simulation at a point of interest and collect data from that window.

In the Tailgate Resupply behavior, we evaluated the following criteria visually: movement formation and movement to the correct locations. Quantitatively, we collected data on the types and amounts of supplies transferred, as well as the specific units and entities that participated in the operation. However, there was at least one criterion that we were unable to collect – the time it took to transfer supplies from one vehicle to another. This was a result of the fact that the Status Window had update delays that significantly impacted our ability to determine the relatively-short transfer times.

3.4. Test Design

To create our test design, we developed a set of scenarios that would evaluate the critical aspects of the behavior. Each scenario can be thought of as a single design point in the overall test design. The specific methodology for choosing the number of, and settings for, the scenarios varied by behavior, because the behaviors differed in complexity. For example, the Move Tactically behavior had 16 required and optional inputs. Those inputs aligned well with the critical aspects of the behavior that we wished to test. Tailgate Resupply, on the other hand, had only four required and optional inputs, but there were other aspects of the behavior that we wished to test that did not correspond to inputs. Thus, we had to take each behavior as a unique case and create the test design uniquely, instead of using a 'cookie cutter' approach.

3.4.1. Conditions

The following is a general description of the types of conditions we tested.

Inputs: Since each parameter the user enters should have an effect on the performance, or output, of the behavior, we needed to test each unique setting for each input to ensure that the settings created the desired effects. We also had to test behavior performance in the absence of an input for the optional parameters. Additionally, there were other potential inputs that were independent of the behavior itself (e.g., unit type and echelon assigned the behavior). We needed to test a representative sample of those inputs as well. When determining the unit type and echelon, we ensured that they were varied between the scenarios, but did not try to test every possible input. For example, the Tailgate Resupply behavior can be assigned to any type of unit at any echelon (entity, team, squad, company, battalion, etc.). Testing all of those would be infeasible.

Special Cases: In addition to the inputs that the user can choose, we also wanted to test the robustness of the behavior. For this, we tested cases that would involve the behavior performing at the extremes or under unusual circumstances. For some behaviors, testing only the range of parameter inputs was sufficient; however, in most cases, we considered such additional aspects. Special cases in our Tailgate Resupply example included testing what would happen if the supply vehicles had the wrong supplies, had an excess or shortage of required supplies, had unnecessary supplies, or had to resupply multiple units. Additionally we wanted to test different classes of supplies (e.g., ammunition, fuel, medical supplies, etc.).

Combinations: Given the large number of potential inputs and variations the behavior could take, we did not try to test every possible combination of input parameters. For example, the Move Tactically behavior had 16 required and optional parameters, with some having as many as 13 choices, resulting in almost a million unique combinations of parameters. We instead tried to ensure that each critical aspect was tested at least once. For instance, if an input had seven potential unique settings, we would have at least seven scenarios. Thus, the parameter with the largest number of potential choices tended to drive the total number of scenarios. Since we were testing only a small subset of the possible combinations, we had to design each scenario carefully to ensure that each special case was tested as well. Consideration of special cases usually added one or two scenarios to the final number.

Final Designs: For each of the test designs, we kept the number of scenarios between six and ten. We found that range to be sufficient to test any of the behaviors we verified without taking an excessive amount of time. In some cases, we had to combine inputs. For instance, in the Move Tactically test, we only tested only one variation of each movement formation (e.g., echelon right but not echelon left). Our Tailgate Resupply behavior test design consisted of six scenarios. A portion of that test design is shown in Table 1. The columns represent each scenario and the rows represent each parameter or special case.

Table 1. Example Behavior Test Design for Tailgate Resupply.

		ì	est Design for	ı	î Î	_
SCENARIO #	1	2	3	4	5	6
GENERAL SETTINGS						
Resupply Unit Type	Armor	Infantry	Mech Infantry IFV	Military Police	Medical	Field Arty
Resupply Unit Echelon	Platoon	Fire Team	Platoon	Platoon	Section	Platoon
SCENARIO CHARACTERISTIC	s	_	_		_	
Classes of Supply Delivered	Class III and V	Class V	Class III	Class III & V	Class III & VIII	Classes III & V
Units Near the LRP	Multiple	Single	Multiple	Single	Multiple	Single
Units to be Resupplied	Single	Single	Single	Single	Multiple	Single
Level of Resupply	Subunit(s)	Unit(s)	Subunit(s)	Unit(s)	Unit(s)	Subunit(s)
Req'd Supplies Available?	Yes, all	Yes, some	None	Yes, some	Yes, all	Yes, all
Unreq'd Supplies Available?	Yes	Yes	Yes	No	No	No
Supply Amounts	Sufficient for All Types	Sufficient for All Types	Insufficient for All Types	Sufficient for Some Types	Sufficient for All Types	Sufficient for Some Types
Unit to Resupply	Section A, Armor Platoon 1	Fire Team	Section 2, Mechanized Infantry Platoon 1	Military Police Platoon	Medical Section to receive Class III and VIII. Transport Platoon to receive Class III only.	Section 2, Artillery Platoon
Formation	Vee	Wedge	Column	Line	EchelonLeft	EchelonRight

3.5. Test Execution and Analysis

With the test design and evaluation criteria determined, we then set up the scenarios in the simulation. We attempted to keep the scenarios simple and to configure them in a way that would provide unambiguous results, instead of being concerned about tactical validity. In many cases, each composite behavior we tested required us to learn a particular functionality that we had not used previously. Thus, this initial portion of execution often consumed a significant amount of time. Often, we would identify conditions that were not, in fact, testable, leading to minor modifications of the design.

Once we created the scenarios, we simply observed and collected data. Sometimes, an interesting or ambiguous result would lead us to run additional excursions with minor variations to understand what was happening. As with scenario development, we sometimes encountered situations during execution that would lead us to alter the overall test design. While we usually ran each scenario numerous times to ensure that it was set up properly, we normally used only the data from the last run for reporting purposes, unless we noticed large variations in output during our trail runs. All behaviors we examined were deterministic, although the stochastic nature of other aspects of the model still caused variations in output between runs. The average time consumed by scenario development and execution was typically five to seven days.

3.6. Result Documentation

Our primary concern in this verification effort was to ensure that we thoroughly recorded everything we did throughout the process, especially since our resource constraints limited the number of unique cases we could observe. We kept very detailed records in spreadsheet form that delineated our test design, the evaluation criteria, and results. As part of that, we often took screenshots of particularly interesting phenomena that would be difficult to explain otherwise. Additionally, we saved all of the scenario files we used, to include any excursions we ran, so that we could include those with our reports.

Our documentation consisted of two primary types of spreadsheets – an overall verification summary spreadsheet and a set of individual behavior verification spreadsheets (one per behavior). Each tab (worksheet) in the *verification summary spreadsheet* contains summary results from the verification of a particular behavior and includes details such as the overall assessment of the behavior, the summary results for each scenario, our references to

documentation, the particular OOS build we used in the verification, and other administrative details.

We recorded the detailed results for each behavior in the *individual behavior verification spreadsheets*. Each of these spreadsheets includes a series of worksheets, one per scenario in the test design. In each scenario worksheet, we recorded general descriptions of the scenario and the terrain, simulation entities and units involved, special cases examined, overall rating for the behavior in that scenario, and the detailed results for each evaluation criterion. Table 2 shows the portion of the worksheet we used to record the detailed results. The visual and data verification *plan* columns in that table identify the results we expected, and the visual and data *results* columns identify the actual results from scenario execution. In the status column, we recorded our assessment of the behavior model's performance for each evaluation criterion (as green, amber, red, or unverified). We used the discussion column to provide additional detail about the results and our assessment.

Table 2. Verification Collection Plan and Recording Spreadsheet.

VERIFICATION PLAN & RESULT	S	ľ	Tage .				
		Visual Verification Plan	Visual Results	Data Verification Plan	Data Results	Status	Discussion
TASK DIALOGUE SETTINGS	"	•		***************************************			
REQUIRED PARAMETERS							
LRP Location	See Scenario File						
Unit to Resupply	Section A, Armor Platoon 1						
Return Location	See Scenario File						
OPTIONAL PARAMETERS	- T				D	-	2
Formation	Vee				i i		
OTHER					1		
Resupply Time	N/A						
Supplies Delivered	N/A						1
Supplies Received	N/A						
Supply Accuracy	N/A					j.	

The individual behavior verification spreadsheets also contained a summary worksheet that includes the overall results for each scenario. An excerpt from that spreadsheet was shown in Table 1, and the final versions of each summary worksheet are included in Appendix B. Each annex in that appendix represents a particular behavior. In Appendix C, we include the individual behavior verification spreadsheet for the Clear Room behavior, with each annex representing each of the scenarios in the test design.

After the completion of each behavior verification, we compiled the information collected in the spreadsheets, along with the scenario files, and sent them directly to the OOS development team. In addition to reporting the results of the behavior verification itself, we also

reported any documentation of	errors or shortcomin	gs, as well as an	y general software	performance
issues we had encountered.				

Section 4 – Results

We must first note that the following results are specific to the particular versions of OOS that we used for the verification, many of which were developmental releases prior to the official release of the model. Thus, many of the problems found during the initial verification and reverification processes have since been fixed in later releases. OOS developers were continually adding new functionality and making significant changes to the model during our verification process. The results shown in Table 3 should be understood within that context as a logical progression of the methodology we developed, and not the final stamp of pass/fail for the composite behavior model functionality within OOS.

Table 3. Behavior Verification Test and Retest Results.

Behavior	Initial Test	Retest
Move tactically	Red	Red
Tailgate re-supply	Green	N/A
Mount / dismount	Amber	Amber
Attack by fire	Amber	Red
Occupy position	Amber	Amber
Clear room	Red	Red
Tow to location	Red	Red
Conduct air reconnaissance	Red	Red
FWA platform follow route	Red	Amber
FWA unit follow route	Amber	Amber
Drop cargo	Red	N/A
Prepare for re-supply	Red	Red
Transfer cargo to basic load	Amber	N/A

Overall, we were able to conduct initial verification of 13 composite behaviors and retesting of ten. Each behavior verification test design included a number of scenarios that were evaluated based upon the developed criteria. For *each* of those criteria within the scenario, we assessed the behavior performance according to Table 4.

Each scenario was then assessed a green, amber, or red rating based upon a holistic view of the simulation's performance with respect to the criteria. Similarly, the behavior itself was assessed an overall rating based upon its performance across the entire test design (all scenarios). Table 5 shows the rating schema at the scenario and behavior levels. In the table's "description" field, the word to the left of the "/" applies to the evaluation of the *scenarios* and the word to the right of the "/" applies to the overall *behavior* evaluation.

Table 4. Criterion Ratings.

Rating	Meaning	Description
Green	Passed	Performed as expected
Amber	Unable to verify/inconclusive	Performance could not be assessed, either because the data resolution was not fine enough to do so (making the results inconclusive), or because the documentation was unclear as to what exactly should occur
Red	Failed	Did not perform as expected
None	Unverified	No means to evaluate performance, due either to the failure of another criterion that altered behavior execution or to a deliberate choice to ignore the criterion based upon the conditions in the particular scenario

In the end, our assessments were necessarily subjective. Unlike physical models for which there is a defined set of parameters and performance expectations, composite behaviors involve sub-behaviors and other dependencies which prevent the development of concrete rule sets for ratings. However, we mitigated against such subjectivity by being meticulous in our recording of the precise observed performance for every criterion, scenario, and composite behavior. Thus, another individual or team could update the assessment based upon their interpretation of the significance of the resulting performance without having to re-run the model across the test design.

Table 5. Scenario/Behavior Ratings.

Rating	Meaning	Description
Green	Passed	Green for all criteria/scenarios, or primarily green for most criteria/scenarios with one or two amber ratings due to inconclusive data
Amber	Unable to verify/ inconclusive	Amber for a majority of the criteria/scenarios, or if there was mostly green ratings with one or two red ratings
Red	Failed	Failed one or more significant criteria/scenarios, or had one or more red ratings with a majority of amber ratings for the remainder of the criteria/scenarios
None	Unverified	No means to evaluate performance of the scenario/behavior

Section 5 – Challenges.

5.1. Documentation

One of the primary challenges the team encountered during this process was insufficient or incorrect documentation, represented graphically in Figure 5. The fundamental shortcoming in the documentation was that there was no clear mapping between the problem-space and the solution space. Thus, when we encountered questions regarding the specifications in the Use Case, we could not refer to the problem-space documents to resolve them.

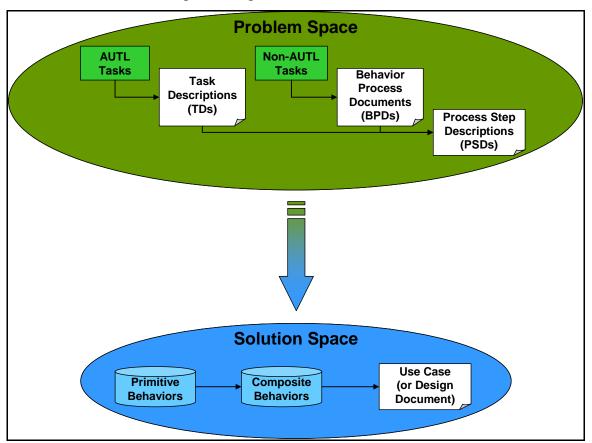


Figure 5. Figurative Representation of Documentation Deficiencies.

As we discussed previously, when we were unable to obtain the required information from the documentation, we sometimes had to rely upon our own operational expertise to understand what the model should do. However, we had to take great care not to draw conclusions about behavior performance based upon our assumptions. Thus, when a behavior failed to perform in accordance with our assumptions, we had to avoid using the following reasoning: "Based upon our experience (or our inferences about intent from XML or problem space documents), behavior X should do Y; thus, because it did not do Y, it fails." When the

team encountered these situations, we made note of what we assumed should happen and what did happen and then labeled the behavior performance as "inconclusive" or "unable to verify".

5.2. Data Collection Functionality

The failure of the data collection functionality severely restricted our ability to collect quantitative data. While we were able to work around that by using the Status Window, the accuracy of our results was impacted. For instance, while location was reported in the Status Window, to verify the distance between two vehicles we would have to determine the location of the two vehicles in the Status Window and calculate the distance manually. However, because the distance may vary over time due to terrain, we needed an average of values, making the process very tedious. In some cases, such as supply transfer times in the Tailgate Resupply behavior, we were unable to collect the data at all.

5.3. Software Development Cycle

Our final challenge had to do with the phase of the OOS software development in which we were working. In advance of the initial OOS release, the software developers were continuing to fix errors and add required functionality. However, the software still had bugs and inefficiencies that caused fairly frequent lock-ups or tedious work-arounds. Additionally, our sponsor, PM OneSAF, wanted us to conduct behavior model verification on the latest releases. Therefore, before we progressed to another behavior, we downloaded the newest release of the software, if one was available. Unfortunately, these releases sometimes had new functionalities or changes to the composite behaviors that were not reflected in the documentation. Thus, for each behavior, we had to check the software against the documentation before we got too far into our process.

5.4. Recommendations

The following are some recommendations we developed to help alleviate the challenges we encountered during our efforts.

5.4.1. Documentation

Software development must ensure a complete conceptual description of the behavior models. The implications of insufficient documentation extend beyond verification to validation and even to the users themselves, who must understand exactly how the behavior model will

respond to given set of inputs. Documentation standards must be developed early in the development process and adhered to throughout. The standards must address traceability from the real-world behavior itself through the final implementation, by ensuring that the documentation provides a clear link between the knowledge acquisition and engineering processes and the model implementation. While it is understandable that documentation may lag behind development to some degree, the program should take significant steps to ensure that traceability is maintained throughout, particularly before entering the verification stage.

5.4.2. Data Collection

A working data collection functionality is a requirement for verification. If the organic data collection functionality in the model is insufficient, the program should pursue external tools capable of collecting the required data. While significant strides can be made toward verification using other techniques, model generated data must be examined in order to truly verify many aspects of the implementation.

5.4.3. Software Development Cycle

Little can be done to prevent challenges resulting from multiple releases of the model; however, some techniques may mitigate the adverse impacts. First, the developers should ensure that any relevant changes to the behavior models being verified are documented, or at least noted, for the verification team. Second, they should ensure that the model release is stable before attempting to integrate it into the verification process. A third alternative is to choose a particular stable release of the model for a phase of the verification. Once the verification team is ready to begin retesting, a new release can then be used. The goal should be to minimize the model changes facing the verification team, instead of sending updated models as they are developed.

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Section 6 – Current and Future Efforts

Following our initial behavior verification effort, TRAC-MTRY began to develop concepts and tools in order to automate portions of the behavior verification process, thereby significantly reducing time and manpower requirements. We used a spiral software engineering approach in the development of appropriate tools. The process involved additional background research, followed by a sequence of development phases. Each spiral iteration included problem definition, methodology review and update, and concept/software development.

Development of automated behavior verification concepts and tools required a thorough understanding of the OOS software architecture. In order to automate the correlation between inputs and outputs, we needed access to internal software data structures and an understanding of the algorithms applied to the data. We focused our background research on those aspects.

The team then reviewed the generic requirements for verification, and re-evaluated our behavior verification methodology. Problem definition was a recurring part of the spiral development process, providing us the flexibility required in an open-ended research and development effort. Inputs into the problem definition process came from background research and previous tool iterations.

We successfully created a working prototype of the OneSAF Behavior Verification Automation tool. In its prototype form, the software developed auto-generates executable OOS scenarios and checks the output of the data files collected during the execution against prespecified parameter characteristics. Figure 6 shows a flow chart representation of the prototype operation.

This prototype demonstrates the fundamental concepts which make the automation of behavior verification possible. TRAC-MTRY has been able to take a simple scenario; use it as a baseline scenario template; auto-generate varied test scenarios based on the baseline scenario; collect data in extensible markup language (XML) files using OOS' organic data collection tools; and conduct parameter checks to evaluate behavior performance using Ruby scripts. These scripts were capable of checking data files over 25 MB in size in less than five seconds. Future work focused on creating "linking software" which binds the significant pieces of software in this prototype together in a user-friendly manner. Future work also focused on developing a means of producing more significant parameter characteristic tests based on

expectations extracted from the developer's documentation. The reader can find more details about this effort in a separate report to be published.

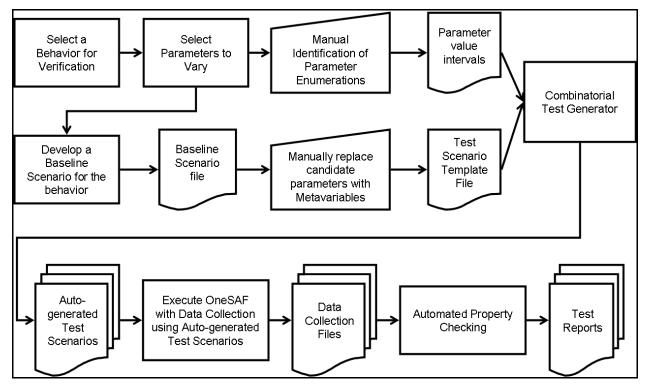


Figure 6. Prototype Automated Behavior Verification Tool Flow Diagram for OOS.

Section 7 – Conclusion

We developed and executed a unique process to verify OOS composite behavior models under tight resource constraints. We developed an overall behavior verification methodology, a test design construct, a verification tracking database, and a detailed reporting procedure. We then executed the verification process on OOS behavior models and provided valuable feedback to PM OneSAF. Our methodology and test designs allowed us to evaluate the behaviors thoroughly with a minimum number of scenarios. Additionally, we devised a process to verify traceability within the documentation from requirements to implementation. Our work has led to a follow-on effort by TRAC-Monterey and the Naval Postgraduate School to automate the verification process for OOS.

As the Army's simulation of choice for brigade and below operations, the use of OOS throughout the Army will continue to increase. As OOS is designed to support all Army modeling and simulation (M&S) communities, its impact on the warfighter cannot be overstated and will directly affect the equipment, support, and training warfighters receive. Ensuring that the behavior representations within OOS execute properly, the focus of this study, is essential to the successful implementation of the system.

Our effort was innovative and advanced the state-of-the-art for verification and behavior modeling. While there is a large compendium of best-practices for verification, there was not anything specific for the application to behavior modeling, a relatively new concept in simulation development. Thus, a unique methodology had to be developed to meet this niche need.

Finally, our effort saved, and can continue to save, Army resources. First, our process demonstrated sound behavior test designs using a minimum number of scenarios, thus saving both time and money. Additionally, our work facilitated improvements to OOS early in the development lifecycle that would be much more costly if done later. Feedback from PM OneSAF and others involved throughout the course of the project praised this work for providing a clear path forward, saving time and manpower, and providing useful insights into improving OOS.

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Appendix A - Original Prioritized List of Composite Behaviors

Table 6. Original Prioritized List of OOS Composite Behaviors for Verification.

Priority	Behavior
1	Move tactically
2	Attack by fire
3	Mount / dismount
4	Tailgate resupply
5	Occupy position
6	Clear room
7	Send call for fire
8	Move tactically (rotary wing aircraft)
9	Attack by fire (rotary wing aircraft)
10	Tow to location
11	Attack built up area
12	Conduct raid
13	Execute sniper mission
14	Conduct ambush
15	Conduct air reconnaissance
16	Conduct ground
10	reconnaissance
17	Platform follow route (fixed wing aircraft)
	Unit follow route (fixed
18	wing aircraft)
19	UAV conduct surveillance
20	Conduct repair
21	Conduct casualty movement
22	Conduct MEDEVAC
23	Conduct entity RWA MEDEVAC
24	Conduct entity treatment
25	Passage of lines forward
26	Passage of line rearward

Priority	Behavior					
27	Provide treatment					
28	Cross level supply					
29	Drop cargo					
30	Load/unload supply					
31	FARP resupply					
32	Prepare for resupply					
33	Service station resupply					
34	Transfer cargo to basic load					
35	Conduct capture rescue					
36	Conduct interview					
37	Breach wall					
38	Clear and mark lane					
39	Construct HVIED					
40	Construct obstacle					
41	Cue radar					
42	Emplace bridge					
43	Emplace minefield					
44	Employ smoke					
45	Fire and relocate					
46	Hitch/unhitch					
47	Maneuver and occupy fire support position					
48	Perform river crossing					
	1 choim five crossing					
49	Prepare fighting position					
50	Retrieve bridge					
51	Withdraw					

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Appendix B - Summary Results for Each Composite Behavior

This appendix shows the summary tables for each of the composite behavior model initial verifications and reverifications (if appropriate), organized in the order that they were completed. The summary tables show both the test design and the summary results for the entire set of scenarios.

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Move Tactically Verification Summary Tables

SCENARIO #	Table 7. Move Tac	R3	R5	R6	R7
OCCITACIO #	11/2	110	11.0	110	IXI
GENERAL SETTINGS					
General Unit Type 1	DM Infantry (Mech)	Anti-Tank	Armor	Infantry	Military Police
General Unit Type 2	Mech Infantry IFV	0	0	#REF!	0
Echelon	Company	Platoon	Company	Squad	Company
Specific Unit Type(s)	/mr/COMBAT/IN FANTRY/CO_Mec hInf_M2A2_Vehicl es_And_Dismount s_US.xml		T/ARMOR/CO/CO	/mr/COMBAT/IN FANTRY/SQD/SQ D_Wpns_Light_Inf Plt_RS_IC.xml	_
Enemy Unit Type(s)	NA	mr/TERRORIST/ SEC/SEC_Vehicle _IED_OPFOR_Bo _mbCell.xml	N/A	0	/mr/COMBAT/IN FANTRY/SQD/SQ D_Guerilla_AGL_ OPFOR.xmI
TASK DIALOGUE SETTINGS					
Header Parameter Tab					
Trigger	On Command	On Command	On Command	On Command	On Command
WCS Summary	Free	Free	Free	Free	Free
Enable Reactions for this Task	No	No	No	No	No
Required Parameter Tab	T - "	- I		- n	
Movement Technique	Traveling Overwatch	Bounding (Successive)	Traveling	Bounding (Alternating)	Traveling
Optional Parameter Tab	Overwalch	(Successive)		(Alternating)	
Route (Line Ctrl Measure)	No	Yes	Yes	Yes (does not apply to the excursion)	No
Destination	Yes	No	No	Yes (applies to the excursion only)	Yes
Speed	75	25	25	4	25
Formation	Column	Line	Wedge	Vee	Column
FormationSpacing	100	200	100	10	100
Final Orientation	No	Yes	No	No	Yes
Mount	Yes	No	No	No	No
Dismount	Yes	No	No	No	Yes
Halt Duration	0	0	0	0	5
planRoute	Yes	No	No	No	Yes
Aperture to Enter or Exit	No	No	No	Yes	No
Rules of Engagement Tab					
General	Use Default ROE	Use Default ROE	Use Default ROE	Use Default ROE	Use Default ROE
	Only	Only	Only	Only	Only
Weapon Control Status	Free	Free	Free	Free	Free

Table 8. Move Tactically Initial Verification Results.

	_ Table 8. Move Tactically initial verification Results.									
VERIFICATION RESULTS										
OVERALL VERIFICATION STATUS	Red (Failed)									
VERIFICATION STATUS BY										
SCENARIO										
SCENARIO #	2	3	5	6	7					
Scenario Verification Status	Red	Red	Red	Red	Red					
Trigger	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)					
Movement Technique	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)					
Route (Line Ctrl Measure)	Unverified	Red (Failed)	Red (Failed)	Green (Passed)	Unverified					
Destination	Red (Failed)	Unverified	Unverified	Red (Failed)	Green (Passed)					
Speed	Amber (Unable to	Amber (Unable to	Amber (Unable to	Green (Passed)	Amber (Unable to					
'	Verify)	Verify)	Verify)		Verify)					
Formation	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)					
FormationSpacing	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)					
Final Orientation	Unverified	Red (Failed)	Unverified	Unverified	Red (Failed)					
Mount	Green (Passed)	Unverified	Unverified	Unverified	Unverified					
Dismount	Amber (Unable to Verify)	Unverified	Unverified	Unverified	Red (Failed)					
Halt Duration	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)					
planRoute	Red (Failed)	Unverified	Unverified	Unverified	Green (Passed)					
Aperture to Enter or Exit	Unverified	Unverified	Unverified	Red (Failed)	Unverified					
Weapon Control Status	Unverified	Red (Failed)	Unverified	Unverified	Amber (Unable to Verify)					

Table 9. Move Tactically Re-verification Test Design.							
SCENARIO #	R2	R3	R5	R6	R7		
GENERAL SETTINGS		T	T	•	1		
General Unit Type 1	DM Infantry (Mech)	Anti-Tank	Armor	Infantry	Military Police		
General Unit Type 2	Mech Infantry IFV	0	0	#REF!	0		
Echelon	Company	Platoon	Company	Squad	Company		
Specific Unit Type(s)	hInf_M2A2_Vehicl	mr/COMBAT/AN TI_ARMOR/PLT/P LT_AntiArmorTow _M1045A1_Lt_Inf _Bn_US.xml	T/ARMOR/CO/CO	/mr/COMBAT/IN FANTRY/SQD/SQ D_Wpns_Light_Inf Plt_RS_IC.xmI	/mr/UA-MNVR- ENHANC- UNITS/CO/CO_MI LITARY_POLICE_ UA_ME_BDE_US. xml		
Enemy Unit Type(s)	NA	mr/TERRORIST/ SEC/SEC_Vehicle _IED_OPFOR_Bo _mbCell.xml	N/A	0	/mr/COMBAT/IN FANTRY/SQD/SQ D_Guerilla_AGL_ OPFOR.xmI		
TASK DIALOGUE SETTINGS Header Parameter Tab							
	0-0	0-0	0 = 0 = = = = = =	0= 0===================================	0 = 0 = = = = = =		
Trigger WCS Summarv	On Command	On Command	On Command	On Command	On Command		
Enable Reactions for this Task	Free No	Free No	Free No	Free No	Free No		
Required Parameter Tab	INO	INO	INU	INO	INU		
Movement Technique	Traveling Overwatch	Bounding (Successive)	Traveling	Bounding (Alternating)	Traveling		
Optional Parameter Tab	•	•	•	•	•		
Route (Line Ctrl Measure)	No	Yes	Yes	Yes (does not apply to the excursion)	No		
Destination	Yes	No	No	Yes (applies to the excursion only)	Yes		
Speed	75	25	25	4	25		
Formation	Column	Line	Wedge	Vee	Column		
FormationSpacing	100	200	100	10	100		
Final Orientation	No	Yes	No	No	Yes		
Mount	Yes	No	No	No	No		
Dismount	Yes	No	No	No	Yes		
Halt Duration	0	0	0	0	5		
planRoute	Yes	No	No	No	Yes		
Aperture to Enter or Exit	No	No	No	Yes	No		
Rules of Engagement Tab	_	T	T		T		
General	Use Default ROE Only	Use Default ROE Only	Use Default ROE Only	Use Default ROE Only	Use Default ROE Only		
Weapon Control Status	Free	Free	Free	Free	Free		

Table 10. Move Tactically Re-verification Results.

	Table 10. Mov	e racucany k e-v	ermeation Resul	us.				
VERIFICATION RESULTS								
OVERALL VERIFICATION STATUS	Red (Failed)							
VERIFICATION STATUS BY SCENARIO								
SCENARIO #	2	3	5	6	7			
Scenario Verification Status	Red	Red	Red	Red	Red			
Trigger	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)			
Movement Technique	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)			
Route (Line Ctrl Measure)	Unverified	Red (Failed)	Red (Failed)	Green (Passed)	Unverified			
Destination	Red (Failed)	Unverified	Unverified	Red (Failed)	Green (Passed)			
Speed	Amber (Unable to Verify)	Amber (Unable to Verify)	Amber (Unable to Verify)	Green (Passed)	Amber (Unable to Verify)			
Formation	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)			
FormationSpacing	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)			
Final Orientation	Unverified	Red (Failed)	Unverified	Unverified	Red (Failed)			
Mount	Green (Passed)	Unverified	Unverified	Unverified	Unverified			
Dismount	Amber (Unable to Verify)	Unverified	Unverified	Unverified	Red (Failed)			
Halt Duration	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)			
planRoute	Red (Failed)	Unverified	Unverified	Unverified	Green (Passed)			
Aperture to Enter or Exit	Unverified	Unverified	Unverified	Red (Failed)	Unverified			
Weapon Control Status	Unverified	Red (Failed)	Unverified	Unverified	Amber (Unable to			

Tailgate Resupply Verification Summary Tables

COENTABLO "		Tungute Ite			Test Design		
SCENARIO #		1	2	3	4	5	6
GENERAL SETTINGS							
	General Type	Armor	Infantry	Mech Infantry IFV	Military Police	Medical	Field Arty
Resupply Unit 1	Echelon	Platoon	Fire Team	Platoon	Platoon	Section	Platoon
	Specific Type	0	0	0	0	0	0
	General Type	0	0	0	0	Transportation	0
Resupply Unit 2	Echelon	0	0	0	0	Platoon	0
	Specific Type	0	0	0	0	0	0
	General Type	General Supply	General Supply	General Supply	General Supply	General Supply	General Supply
Supply Unit 1	Echelon	Section	Section	Section	Section	Platoon	Section
cuppiy cine :	Specific Type	0	0	0	0	0	0
	General Type	0	0	0	0	0	0
Supply Unit 2	Echelon	0	0	0	0	0	0
	Specific Type	0	0	0	0	0	0
Enemy Unit Type(s)	opcome Type	0	0	0	0	0	0
		·		Ŭ	Ü		, v
OTHER SCENARIO CHARAC	TERISTICS						
Classes of Supply Delivered		Class III and V	Class V	Class III	Class III & V	Class III & VIII	Classes III & V
Units Near the LRP		Multiple	Single	Multiple	Single	Multiple	Single
Units to be Resupplied		Single	Single	Single	Single	Multiple	Single
Level of Resupply		Subunit(s)	Unit(s)	Subunit(s)	Unit(s)	Unit(s)	Subunit(s)
Reg'd Supplies Available?		Yes, all	Yes, some	None	Yes, some	Yes, all	Yes, all
Unreg'd Supplies Available?		Yes	Yes	Yes	No	No	No
		Sufficient for All	Sufficient for All	Insufficient for All	Sufficient for	Sufficient for All	Sufficient for
Supply Amounts		Types	Types	Types	Some Types	Types	Some Types
		Types	Турез	турез	Some Types	i ypes	Some Types
TASK DIALOGUE SETTINGS	•						
Header Parameters)						
		0-0	0-0	0-0	0-0	0-0	0-0
Trigger		On Command	On Command	On Command	On Command	On Command	On Command
WCS Summary	L	Free	Free	Free	Free	Free	Free
Enable Reactions for this Task	K	No	No				
Required Parameters				No	No	No	No
				INU	INO	No	No
LRP Location		See Scenario File	See Scenario File	See Scenario File	See Scenario File	No See Scenario File	
LRP Location			I				No See Scenario File
LRP Location			I	See Scenario File	See Scenario File	See Scenario File Medical Section to	See Scenario File
			See Scenario File	See Scenario File Section 2,		See Scenario File Medical Section to receive Class III	See Scenario File
LRP Location Unit to Resupply		See Scenario File	I	See Scenario File Section 2, Mechainzied	See Scenario File	See Scenario File Medical Section to receive Class III and VIII. Transport	See Scenario File
		See Scenario File Section A, Armor	See Scenario File	See Scenario File Section 2,	See Scenario File Military Police	See Scenario File Medical Section to receive Class III and VIII. Transport Platoon to receive	See Scenario File
		See Scenario File Section A, Armor	See Scenario File	See Scenario File Section 2, Mechainzied	See Scenario File Military Police	See Scenario File Medical Section to receive Class III and VIII. Transport	See Scenario File
Unit to Resupply		See Scenario File Section A, Armor Platoon 1	See Scenario File Fire Team	See Scenario File Section 2, Mechainzied Infantry Platoon 1	See Scenario File Military Police Platoon	See Scenario File Medical Section to receive Class III and VIII. Transport Platoon to receive Class III only.	See Scenario File Section 2, Artillery Platoon
Unit to Resupply ReturnLocation		See Scenario File Section A, Armor	See Scenario File	See Scenario File Section 2, Mechainzied	See Scenario File Military Police	See Scenario File Medical Section to receive Class III and VIII. Transport Platoon to receive	See Scenario File Section 2, Artillery Platoon
Unit to Resupply ReturnLocation Optional Parameters		See Scenario File Section A, Armor Platoon 1 See Scenario File	See Scenario File Fire Team See Scenario File	See Scenario File Section 2, Mechainzied Infantry Platoon 1 See Scenario File	See Scenario File Military Police Platoon See Scenario File	See Scenario File Medical Section to receive Class III and VIII. Transport Platoon to receive Class III only. See Scenario File	See Scenario File Section 2, Artillery Platoon See Scenario File
Unit to Resupply ReturnLocation Optional Parameters Formation		See Scenario File Section A, Armor Platoon 1	See Scenario File Fire Team	See Scenario File Section 2, Mechainzied Infantry Platoon 1	See Scenario File Military Police Platoon	See Scenario File Medical Section to receive Class III and VIII. Transport Platoon to receive Class III only.	See Scenario File
Unit to Resupply ReturnLocation Optional Parameters		See Scenario File Section A, Armor Platoon 1 See Scenario File Vee	See Scenario File Fire Team See Scenario File Wedge	See Scenario File Section 2, Mechainzied Infantry Platoon 1 See Scenario File Column	See Scenario File Military Police Platoon See Scenario File Line	See Scenario File Medical Section to receive Class III and VIII. Transport Platoon to receive Class III only. See Scenario File EchelonLeft	See Scenario File Section 2, Artillery Platoon See Scenario File EchelonRight
Unit to Resupply ReturnLocation Optional Parameters Formation Rules of Engagement		See Scenario File Section A, Armor Platoon 1 See Scenario File Vee Use Default ROE	See Scenario File Fire Team See Scenario File Wedge Use Default ROE	See Scenario File Section 2, Mechainzied Infantry Platoon 1 See Scenario File Column Use Default ROE	See Scenario File Military Police Platoon See Scenario File Line Use Default ROE	See Scenario File Medical Section to receive Class III and VIII. Transport Platoon to receive Class III only. See Scenario File EchelonLeft Use Default ROE	See Scenario File Section 2, Artillery Platoon See Scenario File EchelonRight Use Default ROE
Unit to Resupply ReturnLocation Optional Parameters Formation Rules of Engagement General		See Scenario File Section A, Armor Platoon 1 See Scenario File Vee Use Default ROE Only	See Scenario File Fire Team See Scenario File Wedge Use Default ROE Only	See Scenario File Section 2, Mechainzied Infantry Platoon 1 See Scenario File Column Use Default ROE Only	See Scenario File Military Police Platoon See Scenario File Line Use Default ROE Only	See Scenario File Medical Section to receive Class III and VIII. Transport Platoon to receive Class III only. See Scenario File EchelonLeft Use Default ROE Only	See Scenario File Section 2, Artillery Platoon See Scenario File EchelonRight Use Default ROE Only
Unit to Resupply ReturnLocation Optional Parameters Formation Rules of Engagement General Weapon Control Status		See Scenario File Section A, Armor Platoon 1 See Scenario File Vee Use Default ROE Only Free	See Scenario File Fire Team See Scenario File Wedge Use Default ROE Only Free	See Scenario File Section 2, Mechainzied Infantry Platoon 1 See Scenario File Column Use Default ROE Only Free	See Scenario File Military Police Platoon See Scenario File Line Use Default ROE Only Free	See Scenario File Medical Section to receive Class III and VIII. Transport Platoon to receive Class III only. See Scenario File EchelonLeft Use Default ROE Only Free	See Scenario File Section 2, Artillery Platoon See Scenario File EchelonRight Use Default ROE Only Free
Unit to Resupply ReturnLocation Optional Parameters Formation Rules of Engagement General Weapon Control Status Fire Control Measures		See Scenario File Section A, Armor Platoon 1 See Scenario File Vee Use Default ROE Only	See Scenario File Fire Team See Scenario File Wedge Use Default ROE Only	See Scenario File Section 2, Mechainzied Infantry Platoon 1 See Scenario File Column Use Default ROE Only	See Scenario File Military Police Platoon See Scenario File Line Use Default ROE Only	See Scenario File Medical Section to receive Class III and VIII. Transport Platoon to receive Class III only. See Scenario File EchelonLeft Use Default ROE Only	See Scenario File Section 2, Artiller Platoon See Scenario File EchelonRight Use Default ROE Only
Unit to Resupply ReturnLocation Optional Parameters Formation Rules of Engagement General Weapon Control Status Fire Control Measures OTHER		See Scenario File Section A, Armor Platoon 1 See Scenario File Vee Use Default ROE Only Free N/A	See Scenario File Fire Team See Scenario File Wedge Use Default ROE Only Free N/A	See Scenario File Section 2, Mechainzied Infantry Platoon 1 See Scenario File Column Use Default ROE Only Free N/A	See Scenario File Military Police Platoon See Scenario File Line Use Default ROE Only Free	See Scenario File Medical Section to receive Class III and VIII. Transport Platoon to receive Class III only. See Scenario File EchelonLeft Use Default ROE Only Free	See Scenario File Section 2, Artiller Platoon See Scenario File EchelonRight Use Default ROE Only Free
Unit to Resupply ReturnLocation Optional Parameters Formation Rules of Engagement General Weapon Control Status Fire Control Measures OTHER Resupply Time		See Scenario File Section A, Armor Platoon 1 See Scenario File Vee Use Default ROE Only Free	See Scenario File Fire Team See Scenario File Wedge Use Default ROE Only Free	See Scenario File Section 2, Mechainzied Infantry Platoon 1 See Scenario File Column Use Default ROE Only Free N/A N/A	See Scenario File Military Police Platoon See Scenario File Line Use Default ROE Only Free N/A N/A	See Scenario File Medical Section to receive Class III and VIII. Transport Platoon to receive Class III only. See Scenario File EchelonLeft Use Default ROE Only Free N/A N/A	See Scenario File Section 2, Artiller Platoon See Scenario File EchelonRight Use Default ROE Only Free
Unit to Resupply ReturnLocation Optional Parameters Formation Rules of Engagement General Weapon Control Status Fire Control Measures OTHER		See Scenario File Section A, Armor Platoon 1 See Scenario File Vee Use Default ROE Only Free N/A N/A N/A	See Scenario File Fire Team See Scenario File Wedge Use Default ROE Only Free N/A N/A N/A	See Scenario File Section 2, Mechainzied Infantry Platoon 1 See Scenario File Column Use Default ROE Only Free N/A	See Scenario File Military Police Platoon See Scenario File Line Use Default ROE Only Free N/A	See Scenario File Medical Section to receive Class III and VIII. Transport Platoon to receive Class III only. See Scenario File EchelonLeft Use Default ROE Only Free N/A N/A N/A	See Scenario File Section 2, Artillery Platoon See Scenario File EchelonRight Use Default ROE Only Free N/A N/A N/A
Unit to Resupply ReturnLocation Optional Parameters Formation Rules of Engagement General Weapon Control Status Fire Control Measures OTHER Resupply Time		See Scenario File Section A, Armor Platoon 1 See Scenario File Vee Use Default ROE Only Free N/A N/A	See Scenario File Fire Team See Scenario File Wedge Use Default ROE Only Free N/A	See Scenario File Section 2, Mechainzied Infantry Platoon 1 See Scenario File Column Use Default ROE Only Free N/A N/A	See Scenario File Military Police Platoon See Scenario File Line Use Default ROE Only Free N/A N/A	See Scenario File Medical Section to receive Class III and VIII. Transport Platoon to receive Class III only. See Scenario File EchelonLeft Use Default ROE Only Free N/A N/A	See Scenario File Section 2, Artillery Platoon See Scenario File EchelonRight Use Default ROE Only Free N/A
Unit to Resupply ReturnLocation Optional Parameters Formation Rules of Engagement General Weapon Control Status Fire Control Measures OTHER Resupply Time Supplies Delivered		See Scenario File Section A, Armor Platoon 1 See Scenario File Vee Use Default ROE Only Free N/A N/A N/A	See Scenario File Fire Team See Scenario File Wedge Use Default ROE Only Free N/A N/A N/A	See Scenario File Section 2, Mechainzied Infantry Platoon 1 See Scenario File Column Use Default ROE Only Free N/A N/A N/A	See Scenario File Military Police Platoon See Scenario File Line Use Default ROE Only Free N/A N/A N/A	See Scenario File Medical Section to receive Class III and VIII. Transport Platoon to receive Class III only. See Scenario File EchelonLeft Use Default ROE Only Free N/A N/A N/A	See Scenario File Section 2, Artillery Platoon See Scenario File EchelonRight Use Default ROE Only Free N/A N/A N/A

Table 12. Tailgate Resupply Initial Verification Results.

		resuppij iiii				
VERIFICATION RESULTS						
OVERALL VERIFICATION STATUS	Gr	een				
VERIFICATION STATUS BY SCENARIO						
SCENARIO #	1	2	3	4	5	6
Scenario Verification Status	Green	Green	Green	Green	Green	Green
Trigger	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Enable Reactions for this Task	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified
LRP Location	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Unit to Resupply	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
ReturnLocation	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Formation	Green (Passed)	Amber (Unable to Verify)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
General	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified
Weapon Control Status	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified
Fire Control Measures	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified
Resupply Time	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified
Supplies Delivered	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Supplies Received	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Supply Accuracy	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Other 5	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified

Mount/Dismount Verification Summary Tables

Table 13. Mount/Dismount Initial Verification Test Design.

SCENARIO #	1 abi	1	2	3	4	5	6	7
CENEDAL CETTINGS								
GENERAL SETTINGS		DM Infantry	DM Infantry	Dismounted	DM Infantry			Infantry /
	General Type	(Mech)	(Mech)	Infantry / Attachments	(Mech)	Engineer/Mortar	Infantry	Attachments
	Echelon	Platoon	Entity	Platoon / Squad of Attachments	Squad	Entity	Platoon	Platoon / Fire Team of Attachments
Mounting Unit(s)	Specific Type	unit/mr/COMBAT/I NFANTRY/PLT/PL T_MechInf_IC_US .xml	entity/mr/COMBAT /INFANTRY/PltLdr _Mech_Inf_US_IC	unit/mr/COMBAT/I NFANTRY/PLT/PL T_MechInf_IC_US .xml and unit/mr/UA_MNVR _ENHANC_UNITS SQD/SQD_DISM OUNTS_ENGR_ PLT_LT_ENGR_C O_US.xml		entity/mr/COMBAT /ENGINEER/Bulld ozer_D7G_Armore d_Engr_US and entity/mr/COMBAT /INFANTRY/Morta r_M252_81mm_Fi xed_Baseplate	unit/mr/COMBAT/I NFANTRY/PLT/PL T_Light_Infantry_ US_IC.xml	unit/mr/COMBAT/ NFANTRY/PLT/PI T_Light_Infantry_ US_IC.xml and unit/mr/COMBAT/ NFANTRY/FT/FT/ AA_full_LT_Inf_Cd_ _US_IC.xml
	General Type	Mech Inf IFV	Mech Infantry IFV	Mech Infantry IFV / LMTV	Mech Infantry IFV	Engineer	UH60	CH47
	Echelon	Platoon	Entity	Platoon / Entity	Entity	Entity	Platoon	Entity
Transporter Unit(s)	Specific Type		entity/mr/COMBAT /INFANTRY/IFV_P L_WngmnA_M2A 2_MechInf_US	unit/mr/COMBAT/I NFANTRY/PLT/PL T_Mechinf_M2A2 _US.xml and entity/mr/COMBAT _SERVICE_SUPP ORT/TRANSPOR TATION/TrkCgo_L MTV_M1078_US	entity/mr/COMBAT /INFANTRY/IFV_P L_WngmnA_M2A 2_MechInf_US	entity/mr/COMBAT _SERVICE_SUPP ORT/TRANSPOR TATION/TrkTracto _r, entity/mr/COMBAT _SERVICE_SUPP ORT/TRANSPOR TATION/SemiTrail er_25Ton_LowBoy _US, entity/mr/COMBAT _SERVICE_SUPP ORT/TRANSPOR TATION/SemiTrail er_40TonM870A1 _LoBoy_US, and entity/mr/COMBAT _SERVICE_SUPP ORT/TRANSPOR TATION/TRANSPOR TATION/TRANSPOR TATION/TRANSPOR TATION/TRANSPOR TATION/TRANSPOR TATION/TRANSPOR	AVIATION/PLT/PL	entity/mr/COMBAT /AVIATION/ROTA RY_WING/RWA_ CH47D_Chinook_ US
OTHER COENARIO CHARACT	EDIOTIOO							
OTHER SCENARIO CHARACTI Transport Type	EKISTICS	Ground vehicle	Ground vehicle	Ground vehicle	Ground vehicle	Ground vehicle	Aircraft	Aircraft
Number of Transports		Unit	Entity	Both	Entity	Unit	Unit	Entity
Mounter Type		Indiv Combatant	Indiv Combatant	Indiv Combatant	Indiv Cmbt / Litter	Ground vehicle	Indiv Combatant	Indiv Combatant
Number of Mounters		Unit	Single	Both	Part of a Unit	Multiple (3)	Unit	Unit
Capacity of Transporters		Insufficient	Sufficient	Sufficient	Sufficient	One Insufficient	Sufficient	Insufficient
Dismounter Type Dismount Location		N/A N/A	N/A N/A	Indiv Combatant Ground	N/A N/A	Ground vehicle Ground	Roof (one w/	Indiv Combatant Ground
TASK DIALOGUE SETTINGS							space; one w/o)	
Header Parameters								
Trigger		At Time	On Command	Completion of Previous	On Command	Phase Line Crossed	On Command	On Command
WCS Summary		Free	Free	Free	Free	Free	Free	Free
Enable Reactions for this Task		No	No	No	No	No	No	No
Required Parameters								
Mount		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dismount Ontional Parameters		No	No	Yes	No	Yes	Yes	Yes
Optional Parameters Unit Transport to be Mounted		Yes	No	Yes	No	No	Yes	No
Entity Transport to be Mounted		No	Yes	Yes	Yes	Yes	No	Yes
PickUpDropOffMounter Behavior	r	No	No	No	Yes	Yes (for one)	No	No
Rules of Engagement								
General		Use Default ROE Only	Use Default ROE Only	Use Default ROE Only	Use Default ROE Only	Use Default ROE Only	Use Default ROE Only	Use Default ROE Only
Weapon Control Status		Free	Free	Free	Free	Free	Free	Free

Table 14. Mount/Dismount Initial Verification Results.

14)	oic 14. Miou	na Dismoui	it iiiitiai VC	i iiication iv	csuits.		
VERIFICATION RESULTS							
OVERALL VERIFICATION STATUS	Am	ber					
VERIFICATION STATUS BY SCENARIO							
SCENARIO #	1	2	3	4	5	6	7
Scenario Verification Status	Amber	Green	Amber	Amber	Amber	Amber	Amber
Trigger	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Enable Reactions for this Task	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified
Mount	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Dismount	Unverified	Unverified	Green (Passed)	Unverified	Green (Passed)	Green (Passed)	Green (Passed)
Unit Transport to be Mounted	Green (Passed)	Unverified	Green (Passed)	Unverified	Unverified	Green (Passed)	Unverified
Entity Transport to be Mounted	Unverified	Green (Passed)	Unverified	Unverified	Green (Passed)	Unverified	Green (Passed)
PickUpDropOffMounter Behavior	Unverified	Unverified	Unverified	Green (Passed)	Green (Passed)	Unverified	Unverified
General	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified
Weapon Control Status	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified
Fire Control Measures	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified
Mount and/or Dismount Time	Amber (Unable to	Amber (Unable to	Amber (Unable to	Amber (Unable to	Amber (Unable to	Amber (Unable to	Amber (Unable to
Mount and/or dismount Time	Verify)	Verify)	Verify)	Verify)	Verify)	Verify)	Verify)
F 1	O (B1)	O (D)	O (D)	O (D1)	Amber (Unable to	Amber (Unable to	Amber (Unable to
Egress Location	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Verify)	Verify)	Verify)
Staging Location	Unverified	Unverified	Green (Passed)	Unverified	Green (Passed)	Green (Passed)	Green (Passed)
Load Plan	Amber (Unable to Verify)	Green (Passed)	Amber (Unable to Verify)	Amber (Unable to Verify)	Green (Passed)	Green (Passed)	Amber (Unable to Verify)
Capacity	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Roof Dismount	Unverified	Unverified	Unverified	Unverified	Unverified	Amber (Unable to Verify)	Unverified

Table 15. Mount/Dismount Re-verification Test Design.

Table 15. Mount/D		R3	R7
		110	107
GENERAL SETTINGS			
	General Type	Dismounted Infantry / Attachments	Infantry / Attachments
	Echelon	Platoon / Squad of Attachments	Platoon / Fire Team of Attachments
Mounting Unit(s)	Specific Type	.xml and unit/mr/UA_MNVR _ENHANC_UNITS /SQD/SQD_DISM OUNTS_ENGR_ PLT_LT_ENGR_C O_US.xml	unit/mr/COMBAT/I NFANTRY/PLT/PL T_Light_Infantry_ US_IC.xml and
	General Type	Mech Infantry IFV	UH60
	Echelon	/ LMTV Platoon / Entity	Platoon
Transporter Unit(s)	Specific Type	unit/mr/COMBAT/I NFANTRY/PLT/PL T_MechInf_M2A2 _US.xml and entity/mr/COMBAT _SERVICE_SUPP ORT/TRANSPOR TATION/TrkCgo_L MTV_M1078_US	unit/mr/COMBAT/ AVIATION/PLT/PL T_UH60L_Asit_T WA_US.xml
OTHER COENTRIE OF A CAR	DIOTION		
OTHER SCENARIO CHARACTE	RISTICS	Cround vohiolo	Aircroft
Transport Type Number of Transports		Ground vehicle Both	Aircraft Entity
Mounter Type		Indiv Combatant	Indiv Combatant
Number of Mounters		Both	Unit
Capacity of Transporters		Sufficient	Insufficient
Dismounter Type		Indiv Combatant	Indiv Combatant
Dismount Location		Ground	Ground
TASK DIALOGUE SETTINGS			
Header Parameters		Completion of	1
Trigger		Previous	On Command
WCS Summary		Free	Free
Enable Reactions for this Task		No	No
Required Parameters			
Mount		Yes	Yes
Dismount		Yes	Yes
Optional Parameters Unit Transport to be Mounted		Voc	No
Entity Transport to be Mounted		Yes Yes	No Yes
PickUpDropOffMounter Behavior		No	Yes
Rules of Engagement			
General		Use Default ROE Only	Use Default ROE Only
Weapon Control Status		Free	Free
OTHER			
Mount and/or Dismount Time		N/A	N/A
Egress Location		N/A	N/A
Staging Location Load Plan		0 N/A	0 N/A
Capacity		N/A N/A	N/A N/A
Roof Dismount		N/A	N/A
. too. Diditiount		13/73	14/7

Table 16. Mount/Dismount Re-verification Results.

VERIFICATION RESULTS		
OVERALL VERIFICATION STATUS	Amber	
VERIFICATION STATUS BY SCENARIO		•
SCENARIO #	R3	R7
Scenario Verification Status	Amber	Amber
Trigger	Green (Passed)	Green (Passed)
Mount	Green (Passed)	Amber (Unable to Verify)
Dismount	Green (Passed)	Green (Passed)
Unit Transport to be Mounted	Green (Passed)	Unverified
Entity Transport to be Mounted	Unverified	Green (Passed)
Mount and/or Dismount Time	Amber (Unable to Verify)	Amber (Unable to Verify)
Egress Location	Green (Passed)	Amber (Unable to Verify)
Staging Location	Green (Passed)	Green (Passed)
Load Plan	Amber (Unable to Verify)	Amber (Unable to Verify)
Capacity	Green (Passed)	Green (Passed)

Attack by Fire Verification Summary Tables

SCENARIO #						_		_	_
		1	2	3	4	5	6	7	8
GENERAL SETTING	S								
	General Type	Armor	Infantry	Engineer	Military Police		Engineer	Armor	Mech Infantr
	Echelon	Company	Fire Team	Platoon	Platoon	Platoon	Squad	Platoon	Platoon
Attacking Unit	Specific Type	See Scenario File	See Scenario File	See Scenario File	See Scenario File	See Scenario File	AT/ENGINEE R/SQD/SQD_ Dismounts_En grSpt_Plt_IC,x	See Scenario File	See Scenario File
	General Type	Armor	Infantry	Infantry	Maintenance	Mech Infantry	Infantry	Armor	Field Arty
	Echelon	Platoon	Entity	Squad	Platoon	Section	Fire Team	Section	Platoon
Enemy Unit	Specific Type	See Scenario File	See Scenario File	See Scenario File	See Scenario File	See Scenario File	unit/mr/COMB AT/INFANTRY /FT/FT_Basic_ riflemen_witho ut_NVG.xml	See Scenario File	See Scenario File
OTHER SCENARIO (S							
Enemy wrt Assault Ar		Inside	Outside	Both	N/A	N/A	N/A	N/A	N/A
Enemy wrt Sectors of	Fire	N/A	N/A	N/A	Inside	Outside	Both	Both	Both
Line of Sight		Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
		On Command Tight			On Command Free			On Command Hold	
NCS Summary	this Task	On Command Tight	Free	Free	Free	Free	Tight	Hold	Free
WCS Summary Enable Reactions for		Tight							
WCS Summary Enable Reactions for Required Parameters		Tight No	Free No	Free No	Free No	Free No	Tight No	Hold No	Free No
WCS Summary Enable Reactions for Required Parameters Target Location		Tight No See Scenario	Free No See Scenario	Free No See Scenario	Free No See Scenario	Free No See Scenario	Tight No See Scenario	Hold No See Scenario	Free No See Scenario
WCS Summary Enable Reactions for Required Parameters Target Location Combat Position	S	Tight No	Free No	Free No	Free No	Free No	Tight No	Hold No	Free No See Scenario
WCS Summary Enable Reactions for Required Parameters Target Location Combat Position Optional Parameters	S	Tight No See Scenario	Free No See Scenario	Free No See Scenario	Free No See Scenario	Free No See Scenario	Tight No See Scenario	Hold No See Scenario	Free No See Scenario
WCS Summary Enable Reactions for Required Parameters Target Location Combat Position Optional Parameters Speed	S	Tight No See Scenario See Scenario	Free No See Scenario See Scenario	Free No See Scenario See Scenario	Free No See Scenario See Scenario	Free No See Scenario See Scenario	Tight No See Scenario See Scenario	Hold No See Scenario See Scenario	Free No See Scenario See Scenario 50
WCS Summary Enable Reactions for r Required Parameter: Target Location Combat Position Optional Parameters Speed Traveling Formation	S	Tight No See Scenario See Scenario 100 Staggered	Free No See Scenario See Scenario	Free No See Scenario See Scenario	Free No See Scenario See Scenario	Free No See Scenario See Scenario	Tight No See Scenario See Scenario 250	Hold No See Scenario See Scenario	Free No See Scenario See Scenario 50
WCS Summary Enable Reactions for r Required Parameter: Target Location Combat Position Optional Parameters Speed Traveling Formation Assault Area	S	Tight No See Scenario See Scenario 100 Staggered Column	Free No See Scenario See Scenario 5 Vee	Free No See Scenario See Scenario 25 Line	Free No See Scenario See Scenario 50 None	Free No See Scenario See Scenario No Wedge	Tight No See Scenario See Scenario 250 Column	Hold No See Scenario See Scenario 75 EchelonLeft	Free No See Scenario See Scenario 50 EchelonRigh
WCS Summary Finable Reactions for r Required Parameters Farget Location Combat Position Optional Parameters Speed Fraveling Formation Assault Area Perceived Enemy Loc	s s cation	Tight No See Scenario See Scenario 100 Staggered Column Yes	Free No See Scenario See Scenario 5 Vee Yes	Free No See Scenario See Scenario 25 Line Yes	Free No See Scenario See Scenario 50 None No	Free No See Scenario See Scenario No Wedge No	Tight No See Scenario See Scenario 250 Column No	Hold No See Scenario See Scenario 75 EchelonLeft No	Free No See Scenario See Scenario 50 EchelonRigh
WCS Summary Enable Reactions for r Required Parameters Farget Location Combat Position Optional Parameters Speed Traveling Formation Assault Area Perceived Enemy Loc Rules of Engagemer	s s cation	Tight No See Scenario See Scenario 100 Staggered Column Yes	Free No See Scenario See Scenario 5 Vee Yes	Free No See Scenario See Scenario 25 Line Yes	Free No See Scenario See Scenario 50 None No	Free No See Scenario See Scenario No Wedge No	Tight No See Scenario See Scenario 250 Column No	Hold No See Scenario See Scenario 75 EchelonLeft No	Free No See Scenario See Scenario 50 EchelonRigh No No
WCS Summary Enable Reactions for r Required Parameters Farget Location Combat Position Optional Parameters Speed Traveling Formation Assault Area Perceived Enemy Loc Rules of Engagemer General	s s cation nt	Tight No See Scenario See Scenario 100 Staggered Column Yes No Use Default	Free No See Scenario See Scenario 5 Vee Yes No Use Default	Free No See Scenario See Scenario 25 Line Yes No Use Default	Free No See Scenario See Scenario 50 None No No Use Default	Free No See Scenario See Scenario No Wedge No No Use Default	Tight No See Scenario See Scenario 250 Column No No Use Default	Hold No See Scenario See Scenario 75 EchelonLeft No No Use Default	Free No See Scenario See Scenario 50 EchelonRigh No No Use Default
WCS Summary Finable Reactions for r Required Parameters Farget Location Combat Position Optional Parameters Speed Fraveling Formation Assault Area Perceived Enemy Loc Rules of Engagemer General Weapon Control Statu	s seation nt	Tight No See Scenario See Scenario 100 Staggered Column Yes No Use Default ROE Only	Free No See Scenario See Scenario 5 Vee Yes No Use Default ROE Only	Free No See Scenario See Scenario 25 Line Yes No Use Default ROE Only	Free No See Scenario See Scenario 50 None No No Use Default ROE Only	Free No See Scenario See Scenario No Wedge No No Use Default ROE Only	Tight No See Scenario See Scenario 250 Column No No Use Default ROE Only	Hold No See Scenario See Scenario 75 EchelonLeft No No Use Default ROE Only	Free No See Scenario See Scenario 50 EchelonRigh No No Use Default ROE Only
WCS Summary Enable Reactions for it Required Parameter: Farget Location Combat Position Optional Parameters Speed Fraveling Formation Assault Area Perceived Enemy Loc Rules of Engagemer General Weapon Control Statt Fire Control Measures	s seation nt	Tight No See Scenario See Scenario 100 Staggered Column Yes No Use Default ROE Only Tight	Free No See Scenario See Scenario 5 Vee Yes No Use Default ROE Only Free	Free No See Scenario See Scenario 25 Line Yes No Use Default ROE Only Free	Free No See Scenario See Scenario None No No Use Default ROE Only Free	Free No See Scenario See Scenario No Wedge No No Use Default ROE Only Free	Tight No See Scenario See Scenario 250 Column No No Use Default ROE Only Tight	Hold No See Scenario See Scenario 75 EchelonLeft No No Use Default ROE Only Hold	Free No See Scenario See Scenario 50 EchelonRigh No No Use Default ROE Only Free
WCS Summary Finable Reactions for it Required Parameter: Farget Location Combat Position Dptional Parameters Speed Fraveling Formation Assault Area Perceived Enemy Loc Rules of Engagemer General Meapon Control Statu Fire Control Measures DTHER	s seation nt	Tight No See Scenario See Scenario 100 Staggered Column Yes No Use Default ROE Only Tight	Free No See Scenario See Scenario 5 Vee Yes No Use Default ROE Only Free	Free No See Scenario See Scenario 25 Line Yes No Use Default ROE Only Free	Free No See Scenario See Scenario None No No Use Default ROE Only Free	Free No See Scenario See Scenario No Wedge No No Use Default ROE Only Free	Tight No See Scenario See Scenario 250 Column No No Use Default ROE Only Tight	Hold No See Scenario See Scenario 75 EchelonLeft No No Use Default ROE Only Hold	Free No See Scenario See Scenario 50 EchelonRigh No No Use Default ROE Only Free
WCS Summary Enable Reactions for r Enable Reactions for r Required Parameters Farget Location Combat Position Optional Parameters Speed Traveling Formation Assault Area Perceived Enemy Loc Rules of Engagemer General Weapon Control Statt Fire Control Measures OTHER Sectors of Fire	s seation nt	Tight No See Scenario See Scenario 100 Staggered Column Yes No Use Default ROE Only Tight N/A	Free No See Scenario See Scenario 5 Vee Yes No Use Default ROE Only Free N/A	Free No See Scenario See Scenario 25 Line Yes No Use Default ROE Only Free N/A	Free No See Scenario See Scenario 50 None No No Use Default ROE Only Free N/A	Free No See Scenario See Scenario No Wedge No No Use Default ROE Only Free N/A	Tight No See Scenario See Scenario 250 Column No No Use Default ROE Only Tight N/A	Hold No See Scenario See Scenario 75 EchelonLeft No No Use Default ROE Only Hold N/A	Free No See Scenario 50 Echelon Righ No No Use Default ROE Only Free N/A
WCS Summary Enable Reactions for r Enable Reactions for r Required Parameters Target Location Combat Position Optional Parameters Speed Traveling Formation Assault Area Perceived Enemy Loc Rules of Engagemer General Weapon Control Statu Fire Control Measures OTHER Sectors of Fire Line of Site	s seation nt	Tight No See Scenario See Scenario 100 Staggered Column Yes No Use Default ROE Only Tight N/A	Free No See Scenario See Scenario 5 Vee Yes No Use Default ROE Only Free N/A	Free No See Scenario See Scenario 25 Line Yes No Use Default ROE Only Free N/A N/A	Free No See Scenario See Scenario 50 None No No Use Default ROE Only Free N/A	Free No See Scenario See Scenario No Wedge No No Use Default ROE Only Free N/A	Tight No See Scenario See Scenario 250 Column No No Use Default ROE Only Tight N/A	Hold No See Scenario See Scenario 75 EchelonLeft No No Use Default ROE Only Hold N/A	Free No See Scenario See Scenario 50 EchelonRigh No No Use Default ROE Only Free N/A
Trigger WCS Summary Enable Reactions for Required Parameters Target Location Combat Position Optional Parameters Speed Traveling Formation Assault Area Perceived Enemy Loc Rules of Engagemer General Weapon Control Statu Fire Control Measures OTHER Sectors of Fire Line of Site Other 3 Other 4	s seation nt	Tight No See Scenario See Scenario 100 Staggered Column Yes No Use Default ROE Only Tight N/A N/A	Free No See Scenario See Scenario 5 Vee Yes No Use Default ROE Only Free N/A N/A	Free No See Scenario See Scenario 25 Line Yes No Use Default ROE Only Free N/A	Free No See Scenario See Scenario None No No Vo Use Default ROE Only Free N/A N/A	Free No See Scenario See Scenario No Wedge No No Use Default ROE Only Free N/A N/A	Tight No See Scenario See Scenario 250 Column No No Use Default ROE Only Tight N/A N/A	Hold No See Scenario See Scenario 75 EchelonLeft No No Use Default ROE Only Hold N/A N/A	Free No See Scenario See Scenario 50 EchelonRight No No Use Default ROE Only Free N/A N/A

Table 18. Attack by Fire Initial Verification Results.

VERIFICATION RESULTS								
OVERALL VERIFICATION STATUS	Am	ber						
VERIFICATION STATUS BY SCENARIO			,					
SCENARIO #	1	2	3	4	5	6	7	8
Scenario Verification Status	Green	Red	Green	Green	Green	Green	Amber	Green
Trigger	Green	Green	Green	Green	Green	Green	Green	Green
Enable Reactions for this Task	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified
Target Location	Green	Green	Green	Green	Green	Green	Green	Green
Combat Position	Green	Red (Failed)	Green	Green	Green	Green	Green	Green
Speed	Green	Green	Green	Green	Unverified	Green	Green	Green
Traveling Formation	Green	Green	Green	Green	Green	Green	Green	Green
Assault Area	Green	Green	Green	Unverified	Unverified	Unverified	Unverified	Unverified
Perceived Enemy Location	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified
General	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified
Weapon Control Status	Amber (Unable to Verify)	Unverified	Unverified	Unverified	Unverified	Amber (Unable to Verify)	Red (Failed)	Unverified
Fire Control Measures	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified
Sectors of Fire	Unverified	Unverified	Unverified	Green (Passed)	Green (Passed)	Amber (Unable to Verify)	Green (Passed)	Unverified
Line of Sight	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified	Green
Other 3	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified
Other 4	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified
Other 5	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified

Table 19. Attack by Fire Re-verification Test Design	Table 19.	9. Attack by	v Fire R	e-verification	Test Design
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	ttack by Fire Re-ve	erification Test De	sign.
SCENARIO #		R6	R7
GENERAL SETTINGS			
	General Type	Engineer	Armor
	Echelon	Squad	Platoon
Attacking Unit	Specific Type	unit/mr/COMBAT/ ENGINEER/SQD/ SQD_Dismounts_ EngrSpt_Plt_RS_I C.xml	unit/mr/COMBAT/ ARMOR/PLT/PLT _M1A1_Armor_US .xml
	General Type	Infantry	Armor
	Echelon	Fire Team	Section
Enemy Unit	Specific Type	unit/mr/COMBAT/I NFANTRY/FT/FT_ Basic_riflemen_wit hout_NVG.xml	ARMOR/SEC/SEC
OTHER SCENARIO CHAR	ACTERISTICS		
Enemy wrt Engagement Are	ea	N/A	Both
Enemy wrt Sectors of Fire		Both	N/A
Line of Sight		Yes	Yes
		-	
TASK DIALOGUE SETTIN	GS		
Header Parameters			
Trigger		On Command	On Command
WCS Summary		Tight	Tight
Enable Reactions for this Ta	ask	No	No
Required Parameters			
Target Location		See Scenario	See Scenario
Combat Position		See Scenario	See Scenario
Optional Parameters			
Speed		250	75
Traveling Formation		Vee	EchelonLeft
3			
Engagement Area		No	Yes
Engagement Area Perceived Enemy Location		No No	Yes No
Engagement Area		No	No
Engagement Area Perceived Enemy Location		No Use Default ROE	No Use Default ROE
Engagement Area Perceived Enemy Location Rules of Engagement General		No Use Default ROE Only	No Use Default ROE Only
Engagement Area Perceived Enemy Location Rules of Engagement		No Use Default ROE	No Use Default ROE

Table 20. Attack by Fire Re-verification Results.

VERIFICATION RESULTS		
OVERALL VERIFICATION STATUS	Red	
VERIFICATION STATUS BY SCENARIO		
SCENARIO #	R6	R7
Scenario Verification Status	Red	Red
Trigger	Green (Passed)	Green (Passed)
Enable Reactions for this Task	Unverified	Unverified
Target Location	Green (Passed)	Green (Passed)
Combat Position	Green (Passed)	Green (Passed)
Speed	Green (Passed)	Amber (Unable to Verify)
Traveling Formation	Green (Passed)	Green (Passed)
Engagement Area	Unverified	Red (Failed)
Perceived Enemy Location	Unverified	Unverified
General	Unverified	Unverified
Weapon Control Status	Red (Failed)	Amber (Unable to Verify)
Sectors of Fire	Red (Failed)	Red (Failed)
Line of Sight	Unverified	Red (Failed)

Occupy Position Verification Summary Tables

	Table 21. Oc	cupy i osino	n muai vei	mication 16	st Design.		
SCENARIO #		1	2	3	4	5	6
GENERAL SETTINGS							
	General Type	Armor	Infantry	Mech Infantry	Armor	Infantry	Infantry
	Echelon	Platoon (2)	Squad	Company	Platoon	Squad	Squad
		Both are		unit/mr/COMB	unit/mr/COMB		
Occupying Unit(s)		unit/mr/COMB	unit/mr/COMB	AT/INFANTRY			unit/mr/COMB
Occupying offices	Specific Type	AT/ARMOR/P	AT/INFANTRY	/CO MechInf	LT/PLT_M1A1	AT/INFANTRY	AT/INFANTRY
	Specific Type	LT/PLT_M1A1	/SQD/SQD_LtI	M2A2 NoDism		/SQD/SQD_LtI	/SQD/SQD_Ltl
		_Armor_US.x	nf_IC_US.xml	ounts US.xml	ml	nf_IC_US.xml	nf_IC_US.xmI
		ml		ounts_00.xim	1111		
OTHER SCENARIO CHARACTI	ERISTICS						
Number of Fighting Positions		N/A	N/A	N/A	Exact	Insufficient	Excess
Enemy Location Excursions		No	Yes	No	No	Yes	Yes
Occupy Area Size		Large	Large	Small	Large	Large	Small
Number of Units		Multiple	Single	Single	Single	Single	Single
Starting Position		Outside	Outside	Outside	Inside	Outside	Outside
TASK DIALOGUE SETTINGS							
Header Parameters							
Trigger		On Command	On Command	On Command	On Command	On Command	On Command
WCS Summary		Free	Free	Free	Free	Free	Free
Enable Reactions for this Task		No	No	No	No	No	No
Required Parameters							
Occupy Area		See Scenario	See Scenario	See Scenario	See Scenario	See Scenario	See Scenario
Оссиру Агеа		File	File	File	File	File	File
Position Type		Assembly Area	Hasty Position	Deliberate Position	Battle Position	Battle Position	Battle Position
Orientation		See Scenario	See Scenario	See Scenario	See Scenario	See Scenario	See Scenario
Chemation		File	File	File	File	File	File
Optional Parameters							
Enemy Locations		No	Yes	No	No	Yes	Yes
Entry Location		No	Yes	Yes	No	Yes	No
Constrain to Area		Yes	No	Yes	Yes	No	Yes
Occupy Spacing		No	50 m	50	No	50 m	No
Occupy Formation		Column	EchelonRight	Wedge	EchelonLeft	Vee	Line
Travel Formation		Wedge	Column	Vee	Line	EchelonLeft	EchelonRight
Rules of Engagement							
General		Use Default	Use Default	Use Default	Use Default	Use Default	Use Default
		ROE Only	ROE Only	ROE Only	ROE Only	ROE Only	ROE Only
Weapon Control Status		Free	Free	Free	Free	Free	Free
Fire Control Measures		N/A	N/A	N/A	N/A	N/A	N/A
OTHER			1				
Repeatability		N/A	N/A	N/A	N/A	N/A	N/A

Table 22. Occupy Position Initial Verification Results.

VERIFICATION RESULTS								
OVERALL VERIFICATION STATUS	Am	ber						
VERIFICATION STATUS BY SCENARIO			_					
SCENARIO #	1	2	3	4	5	6		
Scenario Verification Status	Amber	Amber	Red	Amber	Amber	Red		
Trigger	Green	Green	Green	Green	Green	Green		
Enable Reactions for this Task	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified		
Occupy Area	Green	Green	Green	Green	Green	Green		
Position Type	Amber (Unable							
1 osition Type	to Verify)							
Orientation	Green	Green	Red (Failed)	Green	Green	Green		
Enemy Locations	Amber (Unable							
Ellerity Educations	to Verify)							
Entry Location	Green	Green	Green	Green	Green	Green		
Constrain to Area	Green	Green	Red (Failed)	Green	Green	Red (Failed)		
Occupy Spacing	Unverified	Green	Green	Unverified	Amber (Unable	Unverified		
Occupy Spacing	Onvenilled	(Passed)	(Passed)	Onvenilled	to Verify)	Onvenilled		
Occupy Formation	Green	Green	Green	Green	Green	Green		
Travel Formation	Green	Green	Green	Green	Green	Green		
General	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified		
Weapon Control Status	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified		
Fire Control Measures	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified		
Repeatability	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified		

Table 23. Occupy Position Re-verification Test Design.

SCENARIO # GENERAL SETTINGS		R5	R6
GENERAL SETTINGS		1.0	Ro
GENERAL SETTINGS			
SEIVERAL SETTINGS			
	General Type	Infantry	Infantry
	Echelon	Squad	Squad
Occupying Unit(s)			unit/mr/COMBAT/I
occupying offices	Specific Type		NFANTRY/SQD/S
	Specific Type	QD_LtInf_IC_US.x	QD_LtInf_IC_US.x
		ml	ml
OTHER SCENARIO CHARACT	TERISTICS		
Number of Fighting Positions		Insufficient	Excess
Enemy Location Excursions		Yes	Yes
Occupy Area Size		Large	Small
Number of Units		Single	Single
Starting Position		Outside	Outside
TASK DIALOGUE SETTINGS			
Header Parameters			
Trigger		On Command	On Command
WCS Summary		Free	Free
Enable Reactions for this Task		No	No
Required Parameters		•	
Occupy Area		See Scenario File	See Scenario File
Position Type		Battle Position	Battle Position
Orientation		See Scenario File	See Scenario File
Optional Parameters		•	
Enemy Locations		Yes	Yes
Entry Location		Yes	No
Constrain to Area		No	Yes
Occupy Spacing		50 m	No
Occupy Formation		Line	Line
Travel Formation		Staggered Column	Staggered Column
Rules of Engagement		•	
		Use Default ROE	Use Default ROE
General		Only	Only
Weapon Control Status		Free	Free
Fire Control Measures		N/A	N/A
OTHER			
Repeatability		N/A	N/A

Table 24. Occupy Position Re-verification Results.

VERIFICATION RESULTS		
OVERALL VERIFICATION STATUS	Amber	
VERIFICATION STATUS BY SCENARIO		
SCENARIO #	R5	R6
Scenario Verification Status	Amber	Amber
Trigger	Green (Passed)	Green (Passed)
Occupy Area	Green (Passed)	Green (Passed)
Position Type	Amber (Unable to	Amber (Unable to
Position Type	Verify)	Verify)
Orientation	Green (Passed)	Green (Passed)
Enemy Locations	Amber (Unable to	Amber (Unable to
Lifethy Locations	Verify)	Verify)
Entry Location	Green (Passed)	Green (Passed)
Constrain to Area	Green (Passed)	Green (Passed)
Occupy Spacing	Green (Passed)	Unverified
Occupy Formation	Green (Passed)	Green (Passed)
Travel Formation	Green (Passed)	Green (Passed)

Clear Room Verification Summary Tables

Table 25. Clear Room Initial Verification Test Design.

General Type	SCENARIO #	1 ubic 201 C	Icai Koom I				-	
General Type	SCENARIO #		1		3	4	5a	OD O
General Type	GENERAL SETTINGS							
Cameral Type	CENERAL CETTINGS		I	l		DM Infantry	DM Infantry	DM Infantry
Echelon		General Type	Infantry	Infantry	Infantry			
Attacking Unit		Echelon	Fire Team	Fire Team	Fire Team			
Attacking Unit		201101011	1 0 1 0 0	1.10 100		1 110 104111		
Specific Type	Attacking Unit		unit/mr/COMB	unit/mr/COMB		unit/mr/COMB		
C_US.xml ght_int_Plt_RS ght_int_Pl	Attacking offit			AT/INFANTRY		AT/INFANTRY		
C_US.xml General Type		Specific Type						
Content Cont								
General Type			O_00.xiiii	_IC.xml		ml		
Enemy		Conorol Tymo	Infontre	None		Infantar		
Enemy								
BAT/INFANTR Combatant Co		Echelon	Entity	IN/A	Enuty	Entity	IN/A	IN/A
Specific Type			entity/mr/COM	OMtitu./	ontity/mr/NON	entity/mr/COM		
OTHER SCENARIO CHARACTERISTICS Location of Fire Team wit Room Not Too Close Together Stack Point Location wit Doorway Stack Consistency Excursion No	Enemy		BAT/INFANTR					
OTHER SCENARIO CHARACTERISTICS Location of Fire Team wrt Room Not Stack on Right Not Too Close Together Together Stack Location wrt Doorway Stack Consistency Excursion No N		Specific Type	Y/RM_AK74_	N/A		Y/IC_FullyLoa	N/A	N/A
OTHER SCENARIO CHARACTERISTICS Location of Fire Team writ Room			GP30_Lt_InfPI			ded_OPFOR_		
Docation of Fire Team wrt Room			t_RS_IC		_vveapon	Basic_rifleman		
Docation of Fire Team wrt Room								
Room to Stack on Right	OTHER SCENARIO CHARAC	CTERISTICS						
Stack Point Locations	Location of Fire Team wrt Roc	om	Outside	Inside	Outside	Outside	Outside	Outside
Together	Room to Stack on Right		N/A	Yes	N/A	No	Yes	N/A
Stack Location wrt Doorway	Stock Point Locations		Not Too Close	NI/A	Too Close	NI/A	NI/A	Not Too Close
Doorway N/A N/A Doorway N/A N/	Stack Point Locations		Together	IN/A	Together	IN/A	IN/A	Together
Doorway Door	Stack Location wrt Doorway		Close to	NI/A	Close to	NI/A	NI/A	Too Far from
Multi-Room Scenario	,							
No								
No								
Grenade Type Fragmentary Free Fre								
TASK DIALOGUE SETTINGS Header Parameters Trigger	Closet in Room (along Entry P	ath)	No	No		No	No	No
TASK DIALOGUE SETTINGS Header Parameters Trigger	Grenade Type		Fragmentary	Fragmentary		No Grenades	Fragmentary	Fragmentary
Description			,	,	Bang			,
Description	TACK DIALOCUE SETTINGS	·						
Trigger)						
WCS Summary Free			On Command	On Command	On Command	On Command	On Command	On Command
Enable Reactions for this Task								
None		<u>, </u>						
None N/A N/A <td></td> <td>Α.</td> <td>I INO</td> <td>INO</td> <td>INU</td> <td>INU</td> <td>INO</td> <td>INO</td>		Α.	I INO	INO	INU	INU	INO	INO
Optional Parameters Room ID Yes Yes Yes Yes No Yes Stack Positions Yes No Yes No No Yes Enemy Expected Yes No Yes No Yes Rules of Engagement General Use Default ROE Only Use Default ROE Only Use Default ROE Only			NI/A	N/A	N/A	N/A	N/A	N/A
Room ID Yes Yes Yes Yes No Yes Stack Positions Yes No Yes No No Yes Enemy Expected Yes No Yes Yes No Yes Rules of Engagement General Use Default ROE Only Use Default ROE Only Use Default ROE Only Use Default ROE Only			IN/A	IN/A	IN/A	IN/A	14/74	IN/A
Stack Positions Yes No Yes No No Yes Enemy Expected Yes No Yes Yes No Yes Rules of Engagement General Use Default ROE only ROE Only NOE ONLY Use Default ROE only Use Default ROE only Use Default ROE only NOE ONLY Use Default ROE only <td></td> <td></td> <td>Vec</td> <td>Voc</td> <td>Vec</td> <td>Vec</td> <td>No</td> <td>Voc</td>			Vec	Voc	Vec	Vec	No	Voc
Enemy Expected Yes No Yes Yes No Yes Rules of Engagement General Use Default ROE Only ROE O								
Rules of Engagement General Use Default ROE Only RO								
General Use Default ROE Only R			163	INO	163	163	INO	163
General ROE Only			Use Default	Use Default	Use Default	Use Default	Use Default	Use Default
Weapon Control Status Free P/A N/A N/A N/A N/A	General			I .				
Fire Control Measures N/A Check Check Check Check Check Check N/A N/A N/A Check N/A N/A N/A Check N/A N/A N/A N/A Check N/A	Weapon Control Status							
OTHER Stack Position Consistency N/A N/A N/A Check N/A N/A Movement into Room Check Check Check Check Check Check Check Check Check Grenade Status Check N/A Check N/A N/A N/A Check								
Stack Position Consistency N/A N/A N/A Check N/A N/A Movement into Room Check Check Check Check Check Check Check Check Grenade Status Check N/A Check N/A N/A N/A N/A								
Movement into Room Check Check Check Check Check Check Check Check N/A N/A N/A N/A Check	_		N/A	N/A	N/A	Check	N/A	N/A
Grenade Status Check N/A Check N/A N/A Check								
	Enemy Engagement		Check	N/A	Check	Check	N/A	N/A

Table 26. Clear Room Initial Verification Results.

	Cicai Rooi	ii iiiitiui VCi	meanon re	buits.				
VERIFICATION RESULTS								
OVERALL VERIFICATION STATUS	R	ed						
VERIFICATION STATUS BY SCENARIO								
SCENARIO #	1	2	3	4	5	6		
Scenario Verification Status	Amber	Amber	Red	Red	Red	Amber		
Trigger	Green	Green	Green	Green	Red (Failed)	Green		
Enable Reactions for this Task	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified		
None	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified		
Room ID	Amber (Unable to Verify)	Unverified	Green (Passed)					
Stack Positions	Amber (Unable to Verify)	Amber (Unable to Verify)	Green (Passed)	Amber (Unable to Verify)	Unverified	Amber (Unable to Verify)		
Enemy Expected	Green	Green	Red (Failed)	Unverified	Unverified	Green		
General	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified		
Weapon Control Status	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified		
Fire Control Measures	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified		
Stack Position Consistency	Unverified	Unverified	Unverified	Red (Failed)	Unverified	Unverified		
Movement into Room	Green	Green	Green	Green	Unverified	Green		
Grenade Status	Amber (Unable to Verify)	Unverified	Amber (Unable to Verify)	Unverified	Unverified	Amber (Unable to Verify)		
Enemy Engagement	Amber (Unable to Verify)	Unverified	Green (Passed)	Red (Failed)	Unverified	Unverified		

Table 27. Clear Room Re-verification Test Design.

General Type	SCENARIO #	Table 27.	R1	R2	R3	R4	R5a	R5b
General Type					7.0			
General Type	GENERAL SETTINGS							
Attacking Unit		General Type	Infantry	Infantry	Infantry	,	,	,
Attacking Unit		Echelon	Fire Team	Fire Team	Fire Team	Fire Team	Fire Team	Fire Team
Echelon	Attacking Unit	Specific Type	AT/INFANTRY /FT/FT_LtInf_I	AT/INFANTRY /FT/FT1of2_Li ght_Inf_Plt_RS	AT/INFANTRY /FT/FT_SPF_ Company_Tea mA_Dismount	AT/INFANTRY /FT/FT_A_Mec hInf_IC_US.x	AT/UA_INF_U NITS/FT/FT_In fantry_Dismou nts_UA_INF_P	NITS/FT/FT_In fantry_Dismou nts_UA_INF_P
Echelon		General Type	Infantry	None	Noncombatant	Infantry	None	None
Enemy			 					
Docation of Fire Team wrt Room Room to Stack on Right N/A N/A Yes N/A	Enemy		entity/mr/COM BAT/INFANTR Y/RM_AK74_ GP30_Lt_InfPI	N/A	entity/mr/NON COMBATANT/ IC_With_Hand	entity/mr/COM BAT/INFANTR Y/IC_FullyLoa ded_OPFOR_	N/A	
Docation of Fire Team wrt Room Room to Stack on Right N/A N/A Yes N/A								
Nom to Stack on Right	L.							
Not Too Close Together		า						
Together	Room to Stack on Right			Yes		No	Yes	
Doorway Doorway N/A Doorway N/A N/	Stack Point Locations		Together	N/A	Together	N/A	N/A	Together
Multi-Room Scenario	Stack Location wrt Doorway		Doorway		Doorway		N/A	Doorway
Yes No No No No No No No N								
No								
Grenade Type Fragmentary Fragmentary Stun/Flash-Bang No Grenades Fragmentary Fragmentary TASK DIALOGUE SETTINGS Header Parameters Trigger On Command On								
TASK DIALOGUE SETTINGS Header Parameters Trigger	Closet in Room (along Entry Pa	th)	No	No		No	No	No
Note	Grenade Type		Fragmentary	Fragmentary		No Grenades	Fragmentary	Fragmentary
Note	TACK DIALOGUE CETTINGS							
Trigger								
Free			10.0	0.0	0.0	0.0	0.0	0.0
None								
None N/A N/A <td>·</td> <td></td> <td>Free</td> <td>Free</td> <td>Free</td> <td>Free</td> <td>Free</td> <td>Free</td>	·		Free	Free	Free	Free	Free	Free
Optional Parameters Room ID Yes Yes Yes Yes No Yes Stack Positions Yes No Yes No No Yes Enemy Expected Yes No Yes No Yes Rules of Engagement Use Default ROE Only Use Default ROE Only Use Default ROE Only Use Default ROE Only			I NI/A	NI/A	NI/A	NI/A	NI/A	NI/A
No Yes Yes Yes Yes No Yes Yes No Yes Yes No Yes Yes Yes No Yes Yes Yes No Yes Ye			IN/A	IN/A	IN/A	IN/A	IN/A	IN/A
Stack Positions Yes No Yes No No Yes Enemy Expected Yes No Yes Yes No Yes Rules of Engagement Use Default ROE only ROE only <td< td=""><td></td><td></td><td>Voc</td><td>Voc</td><td>Voc</td><td>Voc</td><td>No</td><td>Voc</td></td<>			Voc	Voc	Voc	Voc	No	Voc
Enemy Expected Yes No Yes Yes No Yes Rules of Engagement General Use Default ROE Only ROE O								
Rules of Engagement General Use Default ROE Only ROE ONL								
General Use Default ROE Only R	_ , .		162	140	163	169	140	1 53
Weapon Control Status Free Pree Free Free	General			I .				
OTHER Stack Position Consistency N/A N/A N/A Check N/A Check Check Check Check Check Check N/A N/A Check Check Check Check N/A Check Check <t< td=""><td>Weapon Control Status</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	Weapon Control Status							
Stack Position Consistency N/A N/A N/A Check N/A N/A Movement into Room Check Check Check Check Check Check Check Check Grenade Status Check N/A Check N/A N/A N/A Check			1 1100	1100	1100	1100	1100	1100
Movement into Room Check Check Check Check Check Check Check Check N/A N/A N/A N/A Check			N/A	N/A	N/A	Check	N/A	N/A
Grenade Status Check N/A Check N/A N/A Check	Movement into Room							
	Enemy Engagement		Check	N/A	Check	Check	N/A	N/A

Table 28. Clear Room Re-verification Results.

VERIFICATION RESULTS						
OVERALL VERIFICATION STATUS	R	ed				
VERIFICATION STATUS BY SCENARIO			_			
SCENARIO #	R1	R2	R3	R4	R5a	R5b
Scenario Verification Status	Amber	Amber	Red	Red	Red	Amber
	_	_	_	_		
Trigger	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Red (Failed)	Green (Passed)
Room ID	Amber (Unable to Verify)	Amber (Unable to Verify)	Green (Passed)	Green (Passed)	Unverified	Green (Passed)
Stack Positions	Amber (Unable to Verify)	Amber (Unable to Verify)	Green (Passed)	Amber (Unable to Verify)	Unverified	Amber (Unable to Verify)
Enemy Expected	Green (Passed)	Green (Passed)	Red (Failed)	Unverified	Unverified	Green (Passed)
Weapon Control Status	Green (Passed)	Unverified	Green (Passed)	Green (Passed)	Unverified	Unverified
Stack Position Consistency	Unverified	Unverified	Unverified	Red (Failed)	Unverified	Unverified
Movement into Room	Green (Passed)	Amber (Unable to Verify)	Green (Passed)	Green (Passed)	Unverified	Green (Passed)
Grenade Status	Green (Passed)	Unverified	Amber (Unable to Verify)	Unverified	Unverified	Green (Passed)
Enemy Engagement	Green (Passed)	Unverified	Green (Passed)	Green (Passed)	Unverified	Unverified

Tow to Location Verification Summary Tables

Table 29. Tow to Location Initial Verification Test Design.

	Table 29.					-		1
SCENARIO #		1	2	3	4	5	6	7
OFNEDAL OFTTINGS								
GENERAL SETTINGS								
	O 1 T	Maintenance HEMMT	Infantry (Mech)	Maintenance	Maintenance 5	Armor (M1A2	Infantry	Maintenance
	General Type	Wrecker	M113 APC	(M88 Recovery)	Ton Wrecker	Abrams)	(HMMWV)	HEMMT Wrecker
	Echelon	Entity	Entity	Entity	Entity	Entity	Entity	Entity
	LCHEIOH		Littity	Littity	entity/mr/COM	Littity	Littly	Littly
		entity/mr/COM		entity/mr/COM	BAT_SERVIC			entity/mr/COM
Supporting Unit			entity/mr/COM	BAT_SERVIC	E_SUPPORT/	entity/mr/COM	entity/mr/COM	BAT_SERVIC
			BAT/INFANTR	E_SUPPORT/	MAINTENANC	BAT/ARMOR/	BAT/INFANTR	E_SUPPORT/
	Specific Type	MAINTENANC		MAINTENANC	E/Trk_Wrecke	Tank_M1A2_A	Y/HMMWV_M	MAINTENANC
			APC/APC_M1	E/Recovery_V	rRecov 5T M	brams Armor	998_TrkUtil	E/Trk_HEMMT
		_WreckerReco	13A3_Infantry	eh_M88A2_U	TV M1089 U			_WreckerReco
		v_M984_US		S	s			v_M984_US
		Infontm: (Light)	Infants (Mach)	Transportation	Armor (M1A2	Armor (M1A2	Transportation	Infantry (Light)
	General Type	HMMWV	Infantry (Mech) M113 APC	(HEMMT	Almor (WTA2 Abrams)	Affilor (WTA2 Abrams)	(5 Ton Cargo)	Infantry (Light) HMMWV
		HIVIIVIVV V	WITTS APC	Cargo)	Abrams)	Abrams)	(5 Ton Cargo)	HIVIIVIV V
	Echelon	Entity	Entity	Entity	Entity	Entity	Entity	Entity
				entity/mr/COM			entity/mr/COM	
Supported Unit			entity/mr/COM	BAT_SERVIC			BAT_SERVIC	
		entity/mr/COM	DAT/INICANTD	E_SUPPORT/	entity/mr/COM		E_SUPPORT/	entity/mr/COM
	Specific Type	BAT/INFANTR	Y/INFANTRY_	MAINTENANC	BAT/ARMOR/	BAT/ARMOR/	TRANSPORT	BAT/INFANTR
	1	Y/HMMWV_M	APC/APC_M1	E/Trk_HEMMT	Tank_M1A2_A	Tank_M1A2_A	ATION/Truck_	Y/HMMWV_M
		998_TrkUtil	13A3_Infantry	_WreckerReco	brams_Armor	brams_Armor	Cargo_5Ton_	998_TrkUtil
				v_M984_US			M928	
OTHER SCENARIO CHARACT	ERISTICS							
Low Tow Rating		N/A	N/A	N/A	N/A	N/A	Yes	N/A
Two vehicles tasked to tow		N/A	N/A	Yes	N/A	N/A	N/A	N/A
Low Classification of Bridge		N/A	Yes	N/A	N/A	N/A	N/A	N/A
Towee Vehicle in No/Go Terrair	1	N/A	N/A	N/A	N/A	Yes	N/A	N/A
TASK DIALOGUE SETTINGS								
Header Parameters								
Trigger WCS Summary		On Command	On Command	On Command	On Command	On Command	On Command	On Command
Enable Reactions for this Task		Free No	Free No	Free No	Free No	Free No	Free No	Free No
Required Parameters		INU	INU	INU	INU	INU	INU	INU
Towee Vehicle		HMMWV	M113-2	HEMMT	M1A2	M1A2	Truck	HMMWV
Optional Parameters		1 110110100 V	WITTOE	I ILIVIIVI I	19117.02	1017.02	Traok	7 11 VIII V
Ingress Route		Yes	N/A	N/A	N/A	N/A	N/A	N/A
Egress Route		Yes	Yes	N/A	N/A	Yes	N/A	N/A
Destination		N/A	N/A	Yes	Yes	N/A	Yes	Yes
Final Destination		N/A	N/A	N/A	Yes	Yes	Yes	Yes
Rules of Engagement								
General		Use Default	Use Default	Use Default	Use Default	Use Default	Use Default	Use Default
		ROE Only	ROE Only	ROE Only	ROE Only	ROE Only	ROE Only	ROE Only
Weapon Control Status		Free	Free	Free	Free	Free	Free	Free
Fire Control Measures		N/A	N/A	N/A	N/A	N/A	N/A	N/A
OTHER		N1/A	N1/A	N1/A	I NI/A	N1/A	l v	N//A
Low Tow Rating Two vehicles tasked to tow		N/A N/A	N/A N/A	N/A	N/A N/A	N/A N/A	Yes N/A	N/A N/A
Low Classification of Bridge		N/A N/A	N/A N/A	Yes N/A	N/A N/A	N/A Yes	N/A N/A	N/A N/A
Towee Vehicle in No/Go Terrair	1	N/A N/A	0	N/A	N/A	N/A	N/A N/A	N/A N/A
	•	11/74	U	IN/PA	IN/A	IN/A	11//1	IN/M

Table 30. Tow to Location Initial Verification Results.

VERIFICATION RESULTS							
OVERALL VERIFICATION STATUS	Amber						
VERIFICATION STATUS BY SCENARIO		•					
SCENARIO #	1	2	3	4	5	6	7
Scenario Verification Status	Red (Failed)	Green (Passed)	Amber (Unable to Verify)	Red (Failed)	Green (Passed)	Red (Failed)	Green (Passed)
		1 -	_		_		-
Trigger	Green (Passed)	Green (Passed)	Green (Passed)	Red (Failed)	Green (Passed)	Red (Failed)	Green (Passed)
Enable Reactions for this Task	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified
Towee Vehicle	Green (Passed)	Green (Passed)	Green (Passed)	Unverified	Green (Passed)	Unverified	Green (Passed)
Ingress Route	Red (Failed)	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified
Egress Route	Green (Passed)	Green (Passed)	Unverified	Unverified	Green (Passed)	Unverified	Unverified
Destination	Unverified	Unverified	Green (Passed)	Unverified	Unverified	Unverified	Green (Passed)
Final Destination	Unverified	Unverified	Unverified	Unverified	Green (Passed)	Unverified	Green (Passed)
General	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified
Weapon Control Status	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified
Fire Control Measures	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified
Low Tow Rating	Unverified	Unverified	Unverified	Unverified	Unverified	Amber (Unable to Verify)	Unverified
Two vehicles tasked to tow	Unverified	Unverified	Amber (Unable to Verify)	Unverified	Unverified	Unverified	Unverified
Low Classification of Bridge	Unverified	Unverified	Unverified	Unverified	Amber (Unable to Verify)	Unverified	Unverified
Towee Vehicle in No/Go Terrain	Unverified	Amber (Unable to Verify)	Unverified	Unverified	Unverified	Unverified	Unverified

Table 31. Tow to Location Re-verification Test Design.

General Type	Table 31. Tow to Location Re-verification Test Design. SCENARIO # R1 R3 R6 R8								
General Type			1/ 1	11.0	1/0	1/0			
General Type	GENERAL SETTINGS			T					
Echelon		O	Maintenance	Maintenance (M88	Lafa ata (LINANA)A() ()	Maintenance			
				,,		HEMMT Wrecker			
SERVICE_SUPP ORT/MAINTENAN SERVICE_SUPP ORT/MAINTENAN SERVICE_SUPP ORT/MAINTENAN ORT/MAINTENAN		Echelon		Entity	Entity				
Centeral Type	Supporting Unit	Specific Type	_SERVICE_SUPP ORT/MAINTENAN CE/Trk_HEMMT_ WreckerRecov_M 984_US	_SERVICE_SUPP ORT/MAINTENAN CE/Recovery_Veh _M88A2_US	/INFANTRY/HMM WV_M998_TrkUtil	_SERVICE_SUPP ORT/MAINTENAN CE/Trk_HEMMT_ WreckerRecov_M 984_US			
Echelon		General Type	, , , ,	'		, , ,			
Supported Unit		Echelon							
N/A N/A Yes N/A N/A	Supported Unit		entity/mr/COMBAT /INFANTRY/HMM	entity/mr/COMBAT _SERVICE_SUPP ORT/MAINTENAN CE/Trk_HEMMT_ WreckerRecov_M	entity/mr/COMBAT _SERVICE_SUPP ORT/TRANSPOR TATION/Truck_Ca	entity/mr/COMBAT /INFANTRY/HMM			
N/A N/A Yes N/A N/A									
Two vehicles tasked to tow		RISTICS							
TASK DIALOGUE SETTINGS	ÿ								
No No No No No No No No	I wo vehicles tasked to tow		N/A	Yes	N/A	N/A			
Trigger On Command On Command On Command On Command WCS Summary Free Free Free Free Enable Reactions for this Task No No No No No No No No No N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A	TASK DIALOGUE SETTINGS			Ī					
Free	Header Parameters								
No No No No No No No No Required Parameters	Trigger		On Command	On Command	On Command	On Command			
Name	WCS Summary				Free				
Towee Vehicle	Enable Reactions for this Task		No	No	No	No			
Coptional Parameters	Required Parameters								
N/A N/A N/A N/A N/A	Towee Vehicle		HMMWV	HEMM-T	5 Ton Cargo	HMMWV			
Egress Route Yes N/A N/A N/A Dropoff Point N/A Yes Yes Yes Destination N/A N/A N/A N/A Yes Ingress Point N/A N/A N/A N/A Yes Rules of Engagement Use Default ROE Donly Use Default ROE Only Use Default ROE Only Use Default ROE Only	Optional Parameters								
Dropoff Point N/A Yes Yes Yes Destination N/A N/A N/A N/A Yes Ingress Point N/A N/A N/A N/A Yes Rules of Engagement Use Default ROE Default ROE Only Use Default ROE Only Use Default ROE Only Use Default ROE Only	Ingress Route		Yes	N/A	N/A	N/A			
Destination N/A N/A N/A Yes Ingress Point N/A N/A N/A Yes Rules of Engagement General Use Default ROE Default ROE Only Use Default ROE Only Use Default ROE Only Use Default ROE Only	Egress Route		Yes	N/A	N/A	N/A			
N/A N/A N/A Yes	Dropoff Point		N/A	Yes	Yes	Yes			
Rules of Engagement General Use Default ROE Only	Destination		N/A			Yes			
General Use Default ROE Only Use Default ROE Only </td <td></td> <td></td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>Yes</td>			N/A	N/A	N/A	Yes			
General Only Only Only Only Weapon Control Status Free Free Free Free Fire Control Measures N/A N/A N/A N/A OTHER N/A N/A Yes N/A	Rules of Engagement								
Weapon Control Status Free Free Free Fire Control Measures N/A N/A N/A N/A OTHER N/A N/A Yes N/A	General								
Fire Control Measures N/A N/A N/A N/A OTHER N/A N/A Yes N/A	Weapon Control Status								
OTHER Low Tow Rating N/A N/A Yes N/A	Fire Control Measures								
	OTHER		•						
	Low Tow Rating		N/A	N/A	Yes	N/A			
	Two vehicles tasked to tow		N/A	Yes	N/A	N/A			

Table 32. Tow to Location Re-verification Results.

14010 021				
VERIFICATION RESULTS				
OVERALL VERIFICATION STATUS	Red			
VERIFICATION STATUS BY SCENARIO				
SCENARIO #	R1	R3	R6	R8
Scenario Verification Status	Green (Passed)	Red (Failed)	Amber (Unable to Verify)	Red (Failed)
Trigger	Green (Passed)	Green (Passed)	Amber (Unable to Verify)	Green (Passed)
Towee Vehicle	Green (Passed)	Green (Passed)	Unverified	Unverified
Ingress Route	Green (Passed)	Unverified	Unverified	Unverified
Egress Route	Green (Passed)	Unverified	Unverified	Unverified
Dropoff Point	Unverified	Red (Failed)	Unverified	Unverified
Destination	Unverified	Unverified	Unverified	Unverified
Ingress Point	Unverified	Unverified	Unverified	Red (Failed)
Low Tow Rating	Unverified	Unverified	Amber (Unable to Verify)	Unverified
Two vehicles tasked to tow	Unverified	Amber (Unable to Verify)	Unverified	Unverified

Conduct Air Reconnaissance Verification Summary Tables

Table 33. Conduct Air Reconnaissance Initial Verification Test Design.

SCENARIO #	able 33. Cond	1 1	2	3	4	5	6	7
SCLIVARIO #		<u> </u>		<u> </u>	. 4	, J		
GENERAL SETTINGS								
	General Type	RWA Attack	Any	RWAReconnai ssance Attack	RWA Utility	RWA Reconnaissan ce	Any	FWA Reconnaissan ce
	Echelon	Company	Platoon	Troop	Section	Team	Platoon	Team
Recon Unit	Specific Type	unit/mr/COMB AT/AVIATION/ CO/CO_AH64 D_Longbow_A tk_RWA_US.x ml	unit/mr/UA_AV N_UNITS/PLT/ PLT_CH47_H VY_RWA_CO _GSAB_Avn_ Bde_RWA_US .xml	unit/mr/COMB AT/AVIATION/ CO/CO_OH58 D_ReconAttac k_RWA_US.x ml	0L_Aslt_RWA _US.xml	unit/mr/COMB AT/AVIATION/ TEAM/TM_OH 58D_for_Reco nAttack_PIt_R WA_US.xmI	PLT_CH47_H VY_RWA_CO _GSAB_Avn_ Bde_RWA_US .xml	SEC/SEC_F16 C_Falcon2_Air craft_US.xml
	General Type	Air Defense	N/A	Infantry	N/A	Infantry	N/A	Air Defense
	Echelon	Team		Platoon		Company		Section
Enemy	Specific Type	unit/mr/COMB AT/AIR_DEFE NSE/FT/TM_M ANPADS_BTR _SA18_ADA_ RS_IC.xml		unit/mr/COMB AT/INFANTRY /PLT/PLT_AG L_Dismounts_ and_Vehs_RS. xml		unit/mr/COMB AT/INFANTRY /CO/CO_Motor ized_Inf_Dism ounted_RS_IC .xml		unit/mr/COMB AT/AIR_DEFE NSE/PLT/PLT _2S6M_ADA_ GunMissileBtry _RS.xml
OTHER SCENARIO CHARAC	TEDISTICS							
	TEMBTICS	Apache -	CH-47	Kiowa -	UH-60	Kiowa -	CH-47	1
Aircraft Type		Apache - AH64D	CH-47 Chinook	OH58D	BlackHawk	OH58D	CH-47 Chinook	F-16
Number of Aircraft		6	4	8	2	2	4	2
Environmental Conditions		Night	Night	Day	Night	Night	Day	Day
Environmental conditions		Night	INIGHT	Day	Nignt	Night	Day	Day
TASK DIALOGUE SETTINGS								
Header Parameters								
		0-0	0-0	0- 0	0-0	0-0	0-0	0-0
Trigger		On Command	On Command					On Command
WCS Summary Enable Reactions for this Task		FREE	HOLD	FREE	TIGHT	TIGHT	HOLD	TIGHT
		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Required Parameters		7	7	D. 1.	7	I A	Г Б. (.	A
Recon Mission Type		Zone	Zone	Route	Zone	Area	Route	Area
Optional Parameters		110	7/20	NO	\/E0			110
Ingress Route		NO	YES	NO	YES	NO	YES	NO NEO
Egress Route		NO	NO	NO	YES	NO	YES	YES
Recon Area		YES	YES	NO	YES	YES	NO	YES
Recon Route		NO Expected	NO Not Likely	YES	NO Not Likely	NO Descible	YES Not Likely	NO Descible
Enemy Contact		Expected	Not Likely	Expected	Not Likely	Possible	Not Likely	Possible
Formation Spacing		100 meters	100 meters	80 meters Combat	150 meters Staggered	100 meters Combat	50 meters	50 meters
Formation		Combat Trail	Trail	Spread	Column	Spread	Column	Column
Movement Technique		Bound and Overwatch Successive	Bound and Overwatch Alternating	Bound and Overwatch Alternating	Traveling Overwatch	Bound and Overwatch Successive	Traveling	Traveling
Recon Speed		Default	Default	Default	Default	Default	Default	Default
Commanded Speed		Default	Default	60 Km/hr	50 Km/hr	Default	Default	300 Km/hr
Recon Altitude		Default	Default	Default	Default	Default	Default	Default
Commanded Altitude		Default	50 meters	50 meters	Default	Default	70 meters	200 meters
Should Land		YES	YES	NO	YES	NO	NO	YES
Rules of Engagement								
General		Use Default ROE Only	Use Default ROE Only	Use Default ROE Only	Use Default ROE Only	Use Default ROE Only	Use Default ROE Only	Use Default ROE Only
Weapon Control Status		FREE	HOLD	FREE	TIGHT	TIGHT	HOLD	TIGHT
Fire Control Measures		N/A	N/A	N/A	N/A	N/A	N/A	N/A
OTHER		-						
Reaction to Enemy		YES	N/A	YES	N/A	YES	YES	YES
Recons Feature(s) IAW Defaul	It Time Value	YES	YES	YES	YES	YES	YES	YES
Primary Feature to Recon		Bridge	Obstacles All	Obstacles Vehicle	Buildings	Obstacles Infantry	Route	Bridge
Report Features upon Detection	n	YES	YES	YES	YES	YES	YES	YES
			0	0			0	

Table 34. Conduct Air Reconnaissance Initial Verification Results.

VERIFICATION RESULTS	onduct Air R	ccommissi	ince minim	Vermeun	n Results.		
OVERALL VERIFICATION STATUS	Red						
VERIFICATION STATUS BY SCENARIO		_					
SCENARIO #	1	2	3	4	5	6	7
Scenario Verification Status	Red	Red	Red	Red	Red	Red	Red
	Green	Green	Green	Green		Green	
Trigger	(Passed)	(Passed)	(Passed)	(Passed)	Red (Failed)	(Passed)	Red (Failed)
Enable Reactions for this Task	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified
Recon Mission Type	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified
Number of Features to Recon	Amber (Unable to Verify)	Amber (Unable to Verify)	Amber (Unable to Verify)	Amber (Unable to Verify)	Unverified	Amber (Unable to Verify)	Unverified
Ingress Route	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Unverified	Green (Passed)	Unverified
Egress Route	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Unverified	Green (Passed)	Unverified
Recon Area	Green (Passed)	Green (Passed)	Unverified	Green (Passed)	Unverified	Unverified	Unverified
Recon Route	Unverified	Unverified	Green (Passed)	Unverified	Unverified	Green (Passed)	Unverified
Enemy Contact	Amber (Unable to Verify)	Unverified	Amber (Unable to Verify)	Unverified	Unverified	Unverified	Unverified
Formation Spacing	Red (Failed)	Red (Failed)	Red (Failed)	Red (Failed)	Unverified	Red (Failed)	Unverified
Formation	Red (Failed)	Green (Passed)	Red (Failed)	Green (Passed)	Unverified	Green (Passed)	Unverified
Movement Technique	Green (Passed)	Green (Passed)	Amber (Unable to Verify)	Green (Passed)	Unverified	Green (Passed)	Unverified
Recon Speed	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Unverified	Green (Passed)	Unverified
Commanded Speed	Green (Passed)	Green (Passed)	Amber (Unable to Verify)	Green (Passed)	Unverified	Green (Passed)	Unverified
Recon Altitude	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Unverified	Green (Passed)	Unverified
Commanded Altitude	Green (Passed)	Green (Passed)	Amber (Unable to Verify)	(Passed)	Unverified	Green (Passed)	Unverified
Should Land	Red (Failed)	Red (Failed)	Green (Passed)	Green (Passed)	Unverified	Green (Passed)	Unverified
General	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified
Weapon Control Status Fire Control Measures	Unverified Unverified	Unverified Unverified	Unverified Unverified	Unverified Unverified	Unverified Unverified	Unverified Unverified	Unverified Unverified
Reaction to Enemy	Amber (Unable to Verify)		Amber (Unable to Verify)		Unverified	Unverified	Unverified
Recons Feature(s) IAW Default Time Value	Amber (Unable to Verify)	Amber (Unable to Verify)	Amber (Unable to Verify)	Amber (Unable to Verify)	Unverified	Amber (Unable to Verify)	Unverified
Primary Feature to Recon	Amber (Unable to Verify)	Amber (Unable to Verify)	Amber (Unable to Verify)	Amber (Unable to Verify)	Unverified	Amber (Unable to Verify)	Unverified
Report Features upon Detection	Amber (Unable to Verify)	Amber (Unable to Verify)	Amber (Unable to Verify)	Amber (Unable to Verify)	Unverified	Amber (Unable to Verify)	Unverified

Table 35. Conduct Air Reconnaissance Re-verification Test Design.

	abie 35. Condi	ict Air Reconna				_
SCENARIO #		R2	R3	R4	R5	R7
GENERAL SETTINGS		٦				
GENERAL SETTINGS	1		RWAReconnaissa		RWA	FWA
	General Type	Any	nce Attack	RWA Utility	Reconnaissance	Reconnaissance
	Echelon	Platoon	Troop	Section	Team	Team
	Loncion			Occilon		Tourn
Recon Unit		unit/mr/UA_AVN_	unit/mr/COMBAT/	unit/mr/COMBAT/	unit/mr/COMBAT/	unit/mr/COMBAT/
		UNITS/PLT/PLT_	AVIATION/CO/CO	AVIATION/PLT/PL	AVIATION/TEAM/	AVIATION/SEC/S
	Specific Type	ATK_ACFT_AH64	_OH58D_ReconAt	T_UH60L_Aslt_R	TM_OH58D_for_R	EC_F16C_Falcon
		A_ATK_RECON_	tack_RWA_US.xm	WA_US.xml	econAttack_Plt_R	2_Aircraft_US.xml
		CO_RWA_US.xml			WA_US.xml	
	General Type	N/A	Infantry	N/A	Infantry	Air Defense
	Echelon		Platoon		Company	Section
			unit/mr/COMBAT/I		unit/mr/COMBAT/I	unit/mr/COMBAT/
Enemy			NFANTRY/PLT/PL		NFANTRY/CO/CO	AIR_DEFENSE/P
	Specific Type		T_AGL_Dismount		_Motorized_Inf_Di	LT/PLT_2S6M_AD
			s_and_Vehs_RS.x		smounted_RS_IC.	A_GunMissileBtry
			ml		xml	_RS.xml
OTHER SCENARIO CHARAC	TERISTICS					
Aircraft Type		Apache - AH64A	Kiowa - OH58D	UH-60 BlackHawk	Kiowa - OH58D	F-16
Number of Aircraft		5	8	2	2	2
Environmental Conditions		Night	Day	Night	Night	Night
		_				
TASK DIALOGUE SETTINGS						
Header Parameters						
Trigger		On Command				
WCS Summary		HOLD	FREE	TIGHT	TIGHT	TIGHT
Enable Reactions for this Task		N/A	N/A	N/A	N/A	N/A
Required Parameters						
Required Parameters		Zone	Route	Zone	Area	Area
Optional Parameters						
Ingress Route		YES	NO	YES	NO	NO
Egress Route		NO	NO	YES	NO	YES
Recon Area		YES	NO	YES	YES	YES
Recon Route		NO	YES	NO	NO	NO
Enemy Contact		Not Likely	Expected	Not Likely	Possible	Possible
Formation Spacing		100 meters	80 meters	150 meters	100 meters	50 meters
Formation		Trail	Combat Spread	Staggered Column	Combat Spread	Column
		Bound and	Bound and	- "	Bound and	
Movement Technique		Overwatch	Overwatch	Traveling	Overwatch	Traveling
		Alternating	Alternating	Overwatch	Successive	
Recon Speed		Default	Default	Default	Default	Default
Commanded Speed		Default	60 Km/hr	50 Km/hr	Default	300 Km/hr
Recon Altitude		Default	Default	Default	Default	Default
Commanded Altitude		50 meters	50 meters	Default	Default	200 meters
Should Land		YES	NO	YES	NO	YES
Rules of Engagement						
General		Use Default ROE Only				
Weapon Control Status		HOLD	FREE	TIGHT	TIGHT	TIGHT
OTHER		TIOLD	IINLL	110111	110111	110111
Reaction to Enemy		N/A	YES	N/A	VEC	YES
Recons Feature(s) IAW Defaul	lt Time Value	YES	YES	YES	YES YES	YES
Primary Feature to Recon	it tillie value	Obstacles All	Buildings	Buildings	Obstacles Infantry	YES Bridge
Report Features upon Detection	nn	YES	YES	YES	YES	YES
report i catares apon Detection	""	IES	IES	IES	IES	IES

Table 36. Conduct Air Reconnaissance Re-verification Results.

VERIFICATION RESULTS					
OVERALL VERIFICATION STATUS	Red				
VERIFICATION STATUS BY SCENARIO					
SCENARIO #	R2	R3	R4	R5	R7
Scenario Verification Status	Red	Red	Red	Red	Red
Trigger	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Number of Features to Recon	Green (Passed)	Unverified	Green (Passed)	Green (Passed)	Green (Passed)
Ingress Route	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Egress Route	Green (Passed)	Unverified	Green (Passed)	Green (Passed)	Green (Passed)
Recon Area	Green (Passed)	Unverified	Green (Passed)	Green (Passed)	Green (Passed)
Recon Route	Unverified	Red (Failed)	Unverified	Unverified	Unverified
Enemy Contact	Unverified	Green (Passed)	Unverified	Green (Passed)	Amber (Unable to Verify)
Formation Spacing	Red (Failed)	Red (Failed)	Red (Failed)	Amber (Unable to Verify)	Red (Failed)
Formation	Green (Passed)	Green (Passed)	Green (Passed)	Amber (Unable to Verify)	Green (Passed)
Movement Technique	Green (Passed)	Unverified	Green (Passed)	Green (Passed)	Green (Passed)
Recon Speed	Red (Failed)	Unverified	Green (Passed)	Red (Failed)	Red (Failed)
Commanded Speed	Amber (Unable to Verify)	Red (Failed)	Green (Passed)	Amber (Unable to Verify)	Red (Failed)
Recon Altitude	Green (Passed)	Unverified	Green (Passed)	Green (Passed)	Red (Failed)
Commanded Altitude	Green (Passed)	Red (Failed)	Green (Passed)	Green (Passed)	Red (Failed)
Should Land	Red (Failed)	Unverified	Green (Passed)	Green (Passed)	Green (Passed)
Weapon Control Status	Unverified	Green (Passed)	Unverified	Green (Passed)	Amber (Unable to Verify)
Reaction to Enemy	Unverified	Green (Passed)	Unverified	Green (Passed)	Amber (Unable to Verify)
Recons Feature(s) IAW Default Time Value	Amber (Unable to Verify)	Unverified	Amber (Unable to Verify)	Amber (Unable to Verify)	Amber (Unable to Verify)
Primary Feature to Recon	Green (Passed)	Unverified	Green (Passed)	Green (Passed)	Green (Passed)
Report Features upon Detection	Green (Passed)	Unverified	Green (Passed)	Green (Passed)	Green (Passed)

FWA Platform Follow Route Verification Summary Tables

Table 37. FWA Platform Follow Route Initial Verification Test Design.

SCENARIO #	Table 37. FWA							
SCENARIO #		1A	1B	2	3	4	5	6
GENERAL SETTINGS								
GENERAL SETTINGS	IO 1.T		E14/4	=14/4	=	=14/4	51474	F14/4
	General Type	FWA	FWA	FWA	FWA	FWA	FWA	FWA
	Echelon	Entity	Entity	Entity	Entity	Entity	Entity	Entity
				entity/mr/COM	entity/mr/COM	tit- //COM	entity/mr/COM	
Recon Unit			entity/mr/COM	BAT/AVIATIO	BAT/AVIATIO	entity/mr/COM		entity/mr/COM
Recoil Offic	O:::- T	BAT/AVIATIO		N/FIXED_WIN	N/FIXED_WIN		N/FIXED_WIN	BAT/AVIATIO
	Specific Type		N/FIXED_WIN	G/FWA_A10_	G/FWA_F16C	N/FIXED_WIN G/FWA SU24		N/FIXED_WII G/FWA SU-
		_	G/FWA_Harrie	Thunderbolt_U	_Fighting_Falc	D Fencer.xml	GunShip US.	_
		r	'	S	on_US.xml	D_Fencer.ximi	_Guriship_US. xml	17_FILLETK.XII
					Mounted			
	General Type	Air Defense	Air Defense	Infantry	Infantry	Air Defense	N/A	FWA
	Echelon	Crew	Crew	Platoon	Unit	Unit	0	Entity
-		unit/mr/COMB		unit/mr/COMB	unit/mr/COMB	unit/mr/COMB		entity/mr/CON
Enemy			AT/AIR_DEFE	AT/INFANTRY		AT/AIR_DEFE		BAT/AVIATIO
	Specific Type	NSE/PLT/PLT			/PLT/PLT Mec	NSE/PLT/PLT	0	N/FIXED_WII
	1-1	_265M_ADA_	_265M_ADA_	rrilla Inf ODE		_256M_ADA_		G/FWA_F160
			GunMissileBtry	OR.xml	d_lcs_US.xml	GunMissileBtry	1	_Fighting_Fal
		_RS	_RS			_RS.xml		on_US.xml
OTHER SCENARIO CHARAC	TERISTICS							
Aircraft Type		FWA Harrier	FWA Harrier	FWA A-10	FWA F-16	FWA SU-24	AC-130	FWA SU-17
				Thunderbolt				
Number of Aircraft Environmental Conditions		1 Night	1 Night	1 Day	1 Day	1 Night	1 Night	1 Day
Enemy Contact		Likely	Likely	Unlikely	Very Likely	Very Likely	Unlikely	Likely
Ellerily Contact		Likely	Likely	Unlikely	very Likely	very Likely	Unlikely	Likely
TASK DIALOGUE SETTINGS								
Header Parameters								
Trigger		On Command	On Command	On Comman				
WCS Summary		HOLD	HOLD	FREE	FREE	HOLD	TIGHT	TIGHT
Enable Reactions for this Task	1	YES	YES	NO	YES	NO	NO	YES
Required Parameters	•	120	120	110	120	110	I NO	120
Flight Mode		Low	Low	Very Low	Low	Very Low	High	Medium
Optional Parameters		2011		VOIY 2011	2011	VOI 9 LOW	1 111911	Modiani
Route Type		Air	Air	Air	Air	Air	Air	Air
Pouto Point Type		Mounciete	Mourainta	Destination	Mounciete	Destination	Waypoints	Destination
Route Point Type		Waypoints	Waypoints	Point	Waypoints	Point	• • • • • • • • • • • • • • • • • • • •	Point
Final Orientation		YES	NO	NO	NO	NO	NO	NO
Commanded Speed		Default	Default	User Input	Default	User Input	Default	User Input
Take off Speed		Default	Default	User Input	Default	Default	User Input	Default
Landing Speed		Default	Default	Default	User Input	User Input	User Input	Default
Commanded Altitude		User Input	User Input	Default	User Input	Default	User Input	Default
Should Land		YES	YES	YES	NO	NO	YES	NO
Delay Time		NO	NO	YES	YES	YES	NO	NO
Rules of Engagement		Llas Default	Llas Defacil	Llee Deferrit	Llas Dafa::!t	Llos Dofo::!t	Llas Defacil	Lloo Dof-:-!
General		Use Default ROE Only	Use Default ROE Only	Use Default ROE Only				
Weapon Control Status		HOLD	HOLD	FREE	FREE	HOLD	TIGHT	TIGHT
OTHER		HOLD	I HOLD	INEL	INEL	HOLD	110111	110111
Reaction to Enemy		YES	YES	YES	YES	NO	NO	YES
Type of Enemy Contact		S.A.M.	S.A.M.	Direct Fire	Direct Fire	S.A.M.	N/A	Air to Air

Table 38. FWA Platform Follow Route Initial Verification Results.

VERIFICATION RESULTS OVERALL VERIFICATION STATUS	Red	1	oute Imilai				
VERIFICATION STATUS BY SCENARIO	iteu						
SCENARIO #	1A	1B	2	3	4	5	6
Scenario Verification Status	Red	Green	Amber	Amber	Amber	Amber	Amber
Trigger	Red (Failed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Flight Mode	Amber (Unable to Verify)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Route Type	Amber (Unable to Verify)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Route Point Type	Amber (Unable to Verify)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Final Orientation	Red (Failed)	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified
Commanded Speed	Amber (Unable to Verify)	Amber (Unable to Verify)	Red (Failed)	Red (Failed)	Amber (Unable to Verify)	Red (Failed)	Amber (Unable to Verify)
Take off Speed	Amber (Unable to Verify)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Landing Speed	Amber (Unable to Verify)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Commanded Altitude	Amber (Unable to Verify)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Should Land	Amber (Unable to Verify)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Delay Time	Amber (Unable to Verify)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Reaction to Enemy	Amber (Unable to Verify)	Unverified	Amber (Unable to Verify)				
Type of Enemy Contact	Amber (Unable to Verify)	Green (Passed)	Unverified	Amber (Unable to Verify)			
Multiple Routes during flight	Amber (Unable to Verify)	Amber (Unable to Verify)	Amber (Unable to Verify)	Green (Passed)	Red (Failed)	Green (Passed)	Green (Passed)

Table 39. FWA Platform Follow Route Re-verification Test Design.

SCENARIO #		R1A	R1B	R2	R3	R4	R6
GENERAL SETTINGS							
	General Type	FWA	FWA	FWA	FWA	FWA	FWA
	Echelon	Entity	Entity	Entity	Entity	Entity	Entity
Recon Unit	Specific Type	BAT/AVIATIO N/FIXED_WIN G/FWA_Harrie r	entity/mr/COM BAT/AVIATIO N/FIXED_WIN G/FWA_Harrie r	entity/mr/COM BAT/AVIATIO N/FIXED_WIN G/FWA_A10_ Thunderbolt_U S	entity/mr/COM BAT/AVIATIO N/FIXED_WIN G/FWA_AC13 0H.xml	BAT/AVIATIO N/FIXED_WIN G/FWA_SU24 D_Fencer.xml	BAT/AVIATIO N/FIXED_WIN G/FWA_SU- 17_FitterK.xml
	General Type	Air Defense	Air Defense	Infantry	Infantry	Air Defense	FWA
	Echelon	Crew	Crew	Platoon	Unit	Unit	Entity
Enemy	Specific Type	unit/mr/COMB AT/AIR_DEFE NSE/PLT/PLT _265M_ADA_ GunMissileBtry _RS	AT/AIR_DEFE NSE/PLT/PLT _265M_ADA_	unit/mr/COMB AT/INFANTRY /PLT/PLT_Gue rrilla_Inf_OPF OR.xml	unit/mr/COMB AT/INFANTRY /PLT/PLT_Gue rrilla_Inf_OPF OR.xml	unit/mr/COMB AT/AIR_DEFE NSE/PLT/PLT _256M_ADA_ GunMissileBtry _RS.xml	N/FIXED_WIN G/FWA_F16C
OTHER SCENARIO CHARAC	CTERISTICS						
Aircraft Type		FWA Harrier	FWA Harrier	FWA A-10 Thunderbolt	AC-130	FWA SU-24	FWA SU-17
Number of Aircraft		1	1	1	1	1	1
Environmental Conditions	Environmental Conditions		Night	Day	Day	Night	Day
Enemy Contact		Likely	Likely	Unlikely	Very Likely	Very Likely	Likely
TASK DIALOGUE SETTINGS	8						
Header Parameters							
Trigger			On Command				
WCS Summary		HOLD	HOLD	FREE	FREE	HOLD	TIGHT
Enable Reactions for this Task	K	YES	YES	NO	NO	NO	YES
Required Parameters							
Flight Mode		Low	Low	Very Low	High	Very Low	Medium
Optional Parameters							
Route Type		Air	Air	Air	Air	Air	Air
Route Point Type		Waypoints	Waypoints	Destination Point	Destination Point	Destination Point	Destination Point
Commanded Speed		Default	Default	User Input	Default	User Input	User Input
Commanded Altitude		User Input	User Input	Default	User Input	Default	Default
Should Land		YES	YES	YES	YES	NO	NO
Delay Time		NO	NO	YES	YES	YES	NO
Rules of Engagement							
		Use Default ROE Only	Use Default ROE Only	Use Default ROE Only	Use Default ROE Only	Use Default ROE Only	Use Default ROE Only
General				FREE	FREE	HOLD	TIGHT
General Weapon Control Status		HOLD	HOLD	INLL	1111	HOLD	110111
		HOLD N/A	HOLD N/A	N/A	N/A	N/A	N/A
Weapon Control Status							
Weapon Control Status Fire Control Measures							
Weapon Control Status Fire Control Measures OTHER		N/A	N/A	N/A	N/A	N/A	N/A

Table 40. FWA Platform Follow Route Re-verification Results.

VERIFICATION RESULTS						
OVERALL VERIFICATION STATUS	Amber					
VERIFICATION STATUS BY SCENARIO						
SCENARIO #	R1A	R1B	R2A	R2B	R4	R6
Scenario Verification Status	Not Applicable	Green	Amber	Amber	Amber	Amber
Trigger	Unverified	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Enable Reactions for this Task	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified
Flight Mode	Unverified	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Route Type	Unverified	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Route Point Type	Unverified	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Commanded Speed	Unverified	Amber (Unable to Verify)	Red (Failed)	Red (Failed)	Red (Failed)	Red (Failed)
Commanded Altitude	Unverified	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Should Land	Unverified	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Delay Time	Unverified	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Weapon Control Status	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified
Reaction to Enemy	Unverified	Amber (Unable to Verify)	Amber (Unable to Verify)	Amber (Unable to Verify)	Green (Passed)	Green (Passed)
Type of Enemy Contact	Unverified	Amber (Unable to Verify)	Amber (Unable to Verify)	Amber (Unable to Verify)	Green (Passed)	Green (Passed)
Multiple Routes during flight	Unverified	Amber (Unable to Verify)	Green (Passed)			

FWA Unit Follow Route Verification Summary Tables

Table 41. FWA Unit Follow Route Initial Verification Test Design.

SCENARIO #	Table 41. F WA	1	2	3	4	5	6
GENERAL SETTINGS							
	General Type	FWA	FWA	FWA	FWA	FWA	FWA
	Echelon	Unit	Unit	Entity	Unit	Unit	Unit
Recon Unit	Specific Type	unit/mr/COMB AT/AVIATION/ FLT/FLT_SU2 5_FrogFoot_4 _Aircraft_RS.x ml	AT/AVIATION/ SEC/SEC_A10	SEC/SEC_F16 C_Falcon_2_A ircraft_US.xml	unit/mr/COMB AT/AVIATION/ SEC/SEC_SU 24D_Fencer_2 _Aircraft_RS.x ml	unit/mr/COMB AT/AVIATION/ SEC/SEC_AC 130H_SPECT RE_Gunship_ 2_Aircraft_US. xml	unit/mr/COMB AT/AVIATION/ SEC/SEC_SU 17_FitterK_2_ Aircraft_RS.x ml
	General Type	Air Defense	Infantry	Mounted Infantry	Air Defense	Air Defense	FWA
	Echelon	Crew	Platoon	Unit	Unit	Crew	Unit
Enemy	Specific Type	unit/mr/COMB AT/AIR_DEFE NSE/PLT/PLT _265M_ADA_ GunMissileBtry _RS.xml	unit/mr/COMB AT/INFANTRY /PLT/PLT_Ligh t_Infantry_US_ IC.xml	AT/INFANTRY /PLT/PLT_Mec	unit/mr/COMB AT/AIR_DEFE NSE/PLT/PLT _265M_ADA_ GunMissileBtry _RS.xml	N/A	unit/mr/COMB AT/AVIATION/ SEC/SEC_F16 C_Falcon_2_A ircraft_US.xml
OTHER SCENARIO CHARA	ACTERISTICS						
Aircraft Type		FWA SU25	FWA A-10 Thunderbolt	FWA F-16	FWA SU-24	AC-130	FWA SU-17 Fitter K
Number of Aircraft		4	2	4	2	2	2
Environmental Conditions		Night	Day	Day	Night	Night	Day
Enemy Contact		Likely	Unlikely	Very Likely	Very Likely	Unlikely	Likely
TASK DIALOGUE SETTING	GS .						
Header Parameters							
Trigger		On Command	On Command	On Command		On Command	On Command
WCS Summary		HOLD	FREE	FREE	HOLD	TIGHT	TIGHT
Enable Reactions for this Ta	isk	YES	YES	YES	NO	NO	YES
Required Parameters							
Flight Mode		Low	Very Low	Low	Very Low	High	Meduim
Optional Parameters							
Route Type		Air	Air	Air	Air	Air	Air
Route Point Type		Waypoints	Destination Point	Waypoints	Destination Point	Waypoints	Destination Point
Final Orientation		N/A	N/A	N/A	N/A	N/A	N/A
Commanded Speed		Default	User Input	Default	User Input	Default	User Input
Take off Speed		Default	User Input	Default	Default	User Input	Default
Landing Speed		Default	Default	User Input	User Input	User Input	Default
Commanded Altitude		User Input YES	Default	User Input	Default	User Input	Default
	Should Land		YES	NO	NO	YES	NO
Delay Time		NO	YES	YES	YES	NO	NO
Rules of Engagement							
General		Use Default ROE Only	Use Default ROE Only	Use Default ROE Only	Use Default ROE Only	Use Default ROE Only	Use Default ROE Only
Weapon Control Status		HOLD	FREE	FREE	HOLD	TIGHT	TIGHT
OTHER		•	•	•		-	-
Reaction to Enemy		YES	NO	YES	NO	NO	YES
			D:	Disc et Fine	C A M	NI/A	Air to Air
Type of Enemy Contact		S.A.M.	Direct Fire	Direct Fire	S.A.M.	N/A	Air to Air

Table 42. FWA Unit Follow Route Initial Verification Results.

	<u>VA</u> Unit Follov	v Route IIII	iai verilicat	ion Resuits.		
VERIFICATION RESULTS						
OVERALL VERIFICATION STATUS	Red					
VERIFICATION STATUS BY SCENARIO					_	-
SCENARIO #	1	2	3	4	5	6
Scenario Verification Status	Red	Red	Red	Red	Red	Red
Trigger	Green	Green	Green	Green	Green	Green
	(Passed)	(Passed)	(Passed)	(Passed)	(Passed)	(Passed)
Enable Reactions for this Task	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified
Flight Mode	Green	Green	Green	Green	Red (Failed)	Red (Failed)
<u> </u>	(Passed)	(Passed)	(Passed)	(Passed)	` ′	
Route Type	Green	Green	Green	Green	Green	Green
21	(Passed)	(Passed)	(Passed)	(Passed)	(Passed)	(Passed)
Route Point Type	Green	Green	Green	Green	Green	Green
* 1	(Passed)	(Passed)	(Passed)	(Passed)	(Passed)	(Passed)
Final Orientation	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified
Commanded Speed	Amber (Unable to Verify)	Amber (Unable to Verify)	Red (Failed)	Red (Failed)	Red (Failed)	Red (Failed)
Take off Speed	Amber (Unable to Verify)	Amber (Unable to Verify)	Amber (Unable to Verify)	Amber (Unable to Verify)	Amber (Unable to Verify)	Amber (Unable to Verify)
Landing Speed	Amber (Unable to Verify)	Amber (Unable to Verify)	Amber (Unable to Verify)	Amber (Unable to Verify)	Amber (Unable to Verify)	Amber (Unable to Verify)
Commanded Altitude	Red (Failed)	Green (Passed)	Red (Failed)	Green (Passed)	Red (Failed)	Red (Failed)
Should Land	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Delay Time	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Weapon Control Status	Unverified	Unverified	Unverified	Unverified	Unverified	Unverified
Reaction to Enemy	Amber (Unable to Verify)	Amber (Unable to Verify)	Green (Passed)	Green (Passed)	Unverified	Amber (Unable to Verify)
Type of Enemy Contact	Amber (Unable to Verify)	Amber (Unable to Verify)	Green (Passed)	Green (Passed)	Unverified	Amber (Unable to Verify)
Multiple Routes during flight	Amber (Unable to Verify)	Amber (Unable to Verify)	Unverified	Red (Failed)	Unverified	Unverified

Table 43. FWA Unit Follow Route Re-verification Test Design.

SCENARIO #	1 abie 43. F W A						D.C.
SCENARIO #		R1	R2	R3	R4	R5	R6
GENERAL SETTINGS							
GENERAL SETTINGS	Conoral Type	FWA	FWA	FWA	FWA	FWA	FWA
	General Type Echelon	Unit	Unit	Entity	Unit	Unit	Unit
	Echelon	Offic	Offic	Enuty	Offic	unit/mr/COMB	Offic
		unit/mr/COMB	unit/mr/COMB	unit/mr/COMB	unit/mr/COMB	AT/AVIATION/	unit/mr/COMB
Recon Unit		AT/AVIATION/	AT/AVIATION/	AT/AVIATION/	AT/AVIATION/	SEC/SEC_AC	AT/AVIATION/
Trecon onit	Specific Type	FLT/FLT_SU2	SEC/SEC_A10	SEC/SEC_F16	SEC/SEC_SU	130H_SPECT	SEC/SEC_SU
	Opecinic Type	5_FrogFoot_4		C_Falcon_2_A	24D_Fencer_2	RE Gunship	17_FitterK_2_
		_Aircraft_RS.x	2_Aircraft_US.	ircraft_US.xml	_Aircraft_RS.x	2_Aircraft_US.	Aircraft_RS.x
		ml	xml	iioiait_00.xiiii	ml	xml	ml
	Caranal Trea	Air Deferre	la fa a tar.	Mounted	Air Defense	Air Defense	FWA
	General Type	Air Defense	Infantry	Infantry			FVVA
	Echelon	Crew	Platoon	Unit	Unit	Crew	Unit
		unit/mr/COMB		:://OOMD	unit/mr/COMB		::/:/OOMD
Enemy		AT/AIR DEFE	unit/mr/COMB	unit/mr/COMB	AT/AIR DEFE		unit/mr/COMB
	0 · · · · · · · · · · · · · · ·	NSE/PLT/PLT	AT/INFANTRY	AT/INFANTRY	NSE/PLT/PLT	N1/A	AT/AVIATION/
	Specific Type	_265M_ADA_		/PLT/PLT_Mec	_265M_ADA_	N/A	SEC/SEC_F16
		GunMissileBtry	t_Infantry_US_	hInf_M2A2_An	GunMissileBtry		C_Falcon_2_A
		_RS.xml	IC.xml	d_ICs_US.xml	_RS.xml		ircraft_US.xml
OTHER SCENARIO CHARACT	ERISTICS						
		EMA OLIOF	FWA A-10	E14/4 E 40	ENA 011 04	10.100	FWA SU-17
Aircraft Type		FWA SU25	Thunderbolt	FWA F-16	FWA SU-24	AC-130	Fitter K
Number of Aircraft		4	2	2	2	2	2
Environmental Conditions		Night	Day	Day	Night	Night	Day
Enemy Contact		Likely	Unlikely	Very Likely	Very Likely	Unlikely	Likely
TACK DIALOGUE CETTINGS							
TASK DIALOGUE SETTINGS							
Header Parameters		0 0 1	0 0 1		0 0 1	0 0 1	0 0 1
Trigger		On Command	On Command	On Command	On Command	On Command	On Command
WCS Summary		HOLD	FREE	FREE	HOLD	TIGHT	TIGHT
Enable Reactions for this Task		YES	YES	YES	NO	NO	YES
Required Parameters							
Flight Mode		Low	Very Low	Low	Very Low	High	Medium
Optional Parameters		۸:-	Λ:	Δ:-	Λ:-	Λ:-	Λ:-
Route Type		Air	Air	Air	Air	Air	Air
Route Point Type		Waypoints	Destination Point	Waypoints	Destination Point	Waypoints	Destination Point
Final Orientation		N/A	N/A	N/A	N/A	N/A	N/A
Commanded Speed		Default	User Input	Default	User Input	Default	User Input
Commanded Altitude		User Input	Default	User Input	Default	User Input	Default
Should Land		YES	YES	NO	NO	YES	NO
Delay Time		NO	YES	YES	YES	NO	NO
Formation		Combat Trail	Combat	Echelon Left	Default	Diamond	Default
Formation Spacing			Spread				
Rules of Engagement		User Input	User Input	Default	User Input	User Input	Default
		Use Default	Use Default	Use Default	Use Default	Use Default	Use Default
General		ROE Only	ROE Only	ROE Only	ROE Only	ROE Only	ROE Only
Weapon Control Status		HOLD	FREE	FREE	HOLD	TIGHT	TIGHT
Fire Control Measures				A 1 / A	N/A	N/A	NI/A
		N/A	N/A	N/A	IN/A	IN/A	N/A
OTHER						IN/A	
OTHER Reaction to Enemy		YES	NO	YES	NO	NO	YES
OTHER							

Table 44. FWA Unit Follow Route Re-verification Results.

VERIFICATION RESULTS		3 (, , , , , , , , , , , , , , , , , , , ,	11100011001		
OVERALL VERIFICATION STATUS	Red	1				
VERIFICATION STATUS BY SCENARIO						
SCENARIO #	R1	R2	R3	R4	R5	R6
Scenario Verification Status	Red	Red	Red	Red	Red	Amber
Trigger	Green	Green	Green	Green	Green	Green
riiggei	(Passed)	(Passed)	(Passed)	(Passed)	(Passed)	(Passed)
Flight Mode	Green	Green	Green	Green	Green	Green
. ng.n meac	(Passed)	(Passed)	(Passed)	(Passed)	(Passed)	(Passed)
Route Type	Green	Green	Green	Green	Green	Green
,,	(Passed)	(Passed)	(Passed)	(Passed)	(Passed)	(Passed)
Route Point Type	Green	Green	Green	Green	Red (Failed)	Green
Final Orientation	(Passed) Unverified	(Passed) Unverified	(Passed) Unverified	(Passed) Unverified	Unverified	(Passed) Unverified
i iliai Orientation						
Commanded Speed	`	Amber (Unable	`	Red (Failed)		Amber (Unable
Communica Opeca	to Verify)	to Verify)	to Verify)	rteu (i alleu)	to Verify)	to Verify)
O I . I Alife I .	Green	Green	Green	Green	Green	Green
Commanded Altitude	(Passed)	(Passed)	(Passed)	(Passed)	(Passed)	(Passed)
Should Land	Red (Failed)	Red (Failed)	Green	Green	Red (Failed)	Green
Silouid Laild	Red (Falled)	Red (Falled)	(Passed)	(Passed)	Red (Falled)	(Passed)
Delay Time	Green	Green	Green	Green	Green	Green
Dolay Timo	(Passed)	(Passed)	(Passed)	(Passed)	(Passed)	(Passed)
L	Amber (Unable	Green		Green		Green
Formation	to Verify)	(Passed)	Red (Failed)	(Passed)	Red (Failed)	(Passed)
	37	,				· · · · · ·
Formation Spacing	Red (Failed)	Red (Failed)	Red (Failed)	Red (Failed)	Red (Failed)	Green (Passed)
Weapon Control Status	Unverified	Unverified	Green	Unverified	Unverified	Red (Failed)
			(Passed)			(,
Reaction to Enamy	Amber (Unable	Amber (Unable	Green	Amber (Unable	Unverified	Amber (Unable
Reaction to Enemy	to Verify)	to Verify)	(Passed)	to Verify)	Unverified	to Verify)
Type of Enemy Contact	*	Amber (Unable		Green	Unverified	Amber (Unable
.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	to Verify)	to Verify)	(Passed)	(Passed)	31170111100	to Verify)
Multiple Routes during flight	*	Amber (Unable	Unverified	Amber (Unable	Unverified	Unverified
	to Verify)	to Verify)		to Verify)		

Drop Cargo Verification Summary Tables

Table 45. Drop Cargo Initial Verification Test Design and Results.

SCENARIO #		1	2	3	4
GENERAL SETTINGS					
	General Type	General Supply	Medical	Field Artillery	General Supply
	Echelon	Vehicle	Section	Platoon	Vehicle
		entity/mr/COMBAT	unit/mr/UA_SUST	unit/mr/COMBAT/	entity/mr/COMBA
Supply Unit		_SERVICE_SUPP			_SERVICE_SUPF
Cappiy Cim	Specific Type	ORT/SUPPLY/Tru		Y/PLT/PLT_M109	OR I/TRAINSPOR
	Орсошо турс	ckCargoHEMTT_	gd AmbPlt MedC	A6_155m_Artillery	TATION/Truck_Ca
		M977	o_SUA_US.xml	_US.xml	rgo_HEMTT_M97
		Wierr	0_007(_00:)(1111	_6634111	7.xml
OTHER SCENARIO CHAR					
Classes of Supply Delivered	a	Class I	Class I	Class V	Class III
Type of Vehicle	and and	HEMMT	HMMWV	FAAS-V	HEMMT
Number of Vehicles to Unio	pad	1	2	8	1
TARK BLAL COLLEGE TEN	100				
TASK DIALOGUE SETTIN	GS				
Header Parameters					
Trigger		On Command	On Command	On Command	On Command
Enable Reactions for this Task		No	No	No	No
Required Parameters		•	•		
Cargo Type		MRE (5000)	Bottled Water	Ammunition	Fuel JP8 Bulk
9 7.		()		120MM (Tank)	
Optional Parameters N/A		1 1/4	N1/A	N1/A	N1/A
		N/A	N/A	N/A	N/A
Rules of Engagement		T., 5 (1:505			Lu 5 () 50=
General		Use Default ROE	Use Default ROE	Use Default ROE	Use Default ROE
OTHER		Only	Only	Only	Only
OTHER	-1				
Cargo Dropped IAW Set Va	alues	Yes	No	No	Yes
Obstacle type		N/A	N/A	N/A	River
VEDICIOATION DEC''' TO		_			
VERIFICATION RESULTS					
OVERALL VERIFICATION		Red			
VERIFICATION STATUS E	SY SCENARIO				
SCENARIO #		1	2	3	4
Scenario Verification Stat	us	Green	Red	Red	Green
T :					
Trigger		Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Cargo Type	-1	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Cargo Dropped IAW Set Va	alues	Green (Passed)	Red (Failed)	Red (Failed)	Green (Passed)
Obstacle type		Unverified	Unverified	Unverified	Green (Passed)

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Prepare for Resupply Verification Summary Tables

Table 46. Prepare for Resupply Initial Verification Test Design and Results.

SCENARIO# 4 **GENERAL SETTINGS** General Type Armor Maintenance Mech Infantry IFV Medical Echelon Platoon Company Vehicle Section unit/mr/COMBAT entity/mr/COMBAT unit/mr/UA_SUST unit/mr/COMBAT/ Unit to Prepare SERVICE_SUPP /INFANTRY/INFA AINMENT_UNITS/ ARMOR/PLT/PLT NTRY_IFV/IFV_M SEC/SEC_MedTre ORT/Co_FwdSptC Specific Type M1A1_Armor_US o_Armor_BN_US 2A2_Bradley_Infa atPltHq_MedCo_S .xml UA_US.xml xml ntry General Type N/A N/A N/A N/A Enemy Unit Type(s) **Echelon** N/A N/A N/A N/A Specific Type N/A N/A N/A N/A OTHER SCENARIO CHARACTERISTICS Terrain Surrounding the Resupply Location Unobstructed River Unobstructed Built-up Area TASK DIALOGUE SETTINGS **Header Parameters** Trigger On Command On Command On Command On Command WCS Summary Free Free Free Free Required Parameters Resupply Location **User Input User Input** User Input User Input

Formation	Check	Check	N/A	Check
VERIFICATION RESULTS				
OVERALL VERIFICATION STATUS	Red			
VERIFICATION STATUS BY SCENARIO				
SCENARIO #	1	2	3	4
Scenario Verification Status	Red	Red	Amber	Green
Trigger	Green (Passed)	Green (Passed)	Green (Passed)	Green (Passed)
Resupply Location	Green (Passed)	Green (Passed)	Amber (Unable to Verify)	Green (Passed)

N/A

Only

N/A

Only

Use Default ROE | Use Default ROE | Use Default ROE | Use Default ROE

N/A

Only

Unverified

N/A

Only

Green (Passed)

Optional Parameters

Rules of Engagement

N/A

General

OTHER

Formation

SCENARIO #		R1	R2
GENERAL SETTINGS			
	General Type	Armor	Maintenance
	Echelon	Platoon	Company
Unit to Prepare	Specific Type	unit/mr/COMBAT/ ARMOR/PLT/PLT _M1A1_Armor_US .xml	unit/mr/COMBAT_ SERVICE_SUPP ORT/Co_FwdSptC o_Armor_BN_US. xml
	General Type	N/A	N/A
Enemy Unit Type(s)	Echelon	N/A	N/A
	Specific Type	N/A	N/A
OTHER SCENARIO CHARAC	CTERISTICS		
Terrain Surrounding the Resu	pply Location	Unobstructed	River
	,		
TASK DIALOGUE SETTINGS	3		
Header Parameters			
Trigger		On Command	On Command
WCS Summary		Free	Free
Enable Reactions for this Tas	k	No	No
Required Parameters			
Resupply Location		See PVD	See PVD
Optional Parameters			•
N/A		N/A	N/A
Rules of Engagement			
General		Use Default ROE Only	Use Default ROE Only
OTHER			
Formation		Check	Check
VERIFICATION RESULTS			_
OVERALL VERIFICATION S		Red	
VERIFICATION STATUS BY	SCENARIO		
SCENARIO #		R1	R2
Scenario Verification Status	<u> </u>	Red	Red
Trigger		Green (Passed)	Green (Passed)
Resupply Location		Green (Passed)	Green (Passed)
Formation		Red (Failed)	Red (Failed)

Transfer Cargo to Basic Load Verification Summary Tables

	. Transfer Cargo to E	Basic Load Initial \	Verification Test	Design and Resu	ults.
SCENARIO #		1	2	3	4
GENERAL SETTINGS					
	General Type	Individual Combatant	Vehicle	RWA	RWA
	Echelon	Entity	Entity	Entity	Entity
Entity Type	Specific Type	entity/mr/COMBAT /FIELD_ARTILLE RY/DISMOUNT/OI C_FIST_SBCT_inf _Co_US_IC	ORT/TRANSPOR TATION/Truck_Ca	entity/mr/COMBAT /AVIATION/ROTA RY_WING/RWA_ AH64_Apache_US	0
OTHER SCENARIO CHA	RACTERISTICS				
Specific Entity Type		Infantry Soldier	Fuel HEMM-T	AH-64 Apache	UH-60 Blackhawk
Environmental Conditions	i	Night	Day	Night	Day
Enemy Contact		Very Likely	Unlikely	Very Likely	Unlikely
TASK DIALOGUE SETTI	INGS				
Header Parameters					
Trigger		On Command	On Command	On Command	On Command
WCS Summary		FREE	HOLD	FREE	HOLD
Enable Reactions for this	Task	YES	NO	YES	NO
Required Parameters			1	T	
Supplies to Transfer		Class V	Class III	Class V	Class III
D 1 (5)					
Rules of Engagement		T., 5 (1:505	L., D. (); DOE	Lu 5 () 505	
General		Use Default ROE	Use Default ROE	Use Default ROE	Use Default ROE
Weapon Control Status		Only FREE	Only	Only FREE	Only
Fire Control Measures		N/A	HOLD N/A	N/A	HOLD N/A
OTHER		IN/A	IN/A	IV/A	IV/A
Entity Moving		NO	YES	YES	YES
Entity Moving		NO	ILO	TEG	ILO
VERIFICATION RESULT	S				
OVERALL VERIFICATIO		Amber			
VERIFICATION STATUS		Allibot			
SCENARIO #		1	2	3	4
Scenario Verification St	atus	Amber	Green	Amber	Amber
Trigger		Unverified	Green (Passed)	Unverified	Unverified
Supplies to Transfer		Unverified	Green (Passed)	Unverified	Unverified
Entity Moving		Unverified	Green (Passed)	Unverified	Unverified

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Appendix C - Detailed Results for the Clear Room Behavior

This appendix shows the detailed results of the initial verification of the Clear Room composite behavior. Each section includes the completed tracking spreadsheet from a single scenario within the overall test design.

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General Scenario Description	A four-man fire tear	A four-man fire team is tasked to clear a small room. The ro	oom selected is a closet with a single of	pposing entity hiding inside. Four stack	small room. The room selected is a closet with a single opposing entity hiding inside. Four stack positions (labelled Position! through Position4) are provided close to the closet door and the fire team	sition4) are provided close	e to the closet door and the fire team	_
General Terrain Description	The scenario occur	expects entering insuler. The line team is initiarly tocated outside the building. The scenario occurs primarily inside the building.	orde use ballanig.					
Scenario Path/Filename	Linux2 scenario/tests/Clea	Linux 2 scenario dests/OlearRoom/Scenario 1/Scenario 3 xml						
Analyst		Harold Yamauchi						
GENERAL SETTINGS								
Attacking Unit	General Type Echelon Specific Type	Infa Fire unit/mr/COMBAT/INFANTF	antry Team RY/FT/FT_LtInf_IC_US.xmI					Ta
Епету	General Type Echelon Specific Type	Infa En entity/mr/cOMBAT/INFANTRY/R	antry ntity RM AK74 GP30 Lt InfPit RS IC					able
OTHER SCENARIO CHARACTERIST	Tics							49.
Location of Fire Team wrt Room Room to Stack on Right	Outside N/A							. C
Stack Point Locations Stack Location wrt Donway	Not Too Close Tog	gether						lea
Stack Consistency Excursion Multi-Room Scenario	o N							ır J
Room too Small	Yes							K o
Closet in Room (along Entry Path) Grenade Type	No Fragmentary							on
OVERALL VERIEICATION RESULTS	tt	_						n I
Scenario Verification Status		Amber						niț
Summany		The fire team approached the closet a Case does not explain how small room a room is too small to clear. Although I consecutive runs, team members did n	and each team member occupied one o ms are handled, although the Developer the closet selected to be cleared was o not stack in the same order. Also, the g	f the designated stack positions. A grer r mentioned that fire teams are not split ne of the smallest enclosures found, it or grenade and round count of the soldier or	roached the closed and each team member occupied one of the designated stack positions. A grenade was thrown into the closed and the entire team entered the closed after the grenade detonated. The lipan how small norms are handled, although the Developer mentioned has the treat are not small norms are handled, although the Developer mentioned has the relative that the closed and the closed and account the closed and are to the same order. As one of the smallest enclosures found it cloud not be determined whether it qualifies as to small for teaming in addition, it was observed that in team members did not stack in the same order. Also, the grenade and round count of the soldier did not decrement to indicate expended anmo. Finally, the team does not engage the enemy in all runs	ndire team entered the clo all rooms. It is not known on the sas too small for clearin ammo. Finally, the team on	The fire team approached the closet and each team member occupied one of the designated stack positions. A grenade was thrown into the closet and the entire team entered the closet after the grenade detonated. The Use Case does not now as the modern at the Developer membrood that fire teams are not of sight to dear and sight on a small rooms at its abrown what critical are used to determine whether are ones of the standard and the standard and the standard are all the standard and the standard are all the standard and a room is to small for dearning in addition, it was observed that in consecutive runs, team members did not stack in the same order. Also, the grenade and round count of the solder did not decrement to indicate expended armo. Finally, the team does not engage the enemy in all runs.	tial Ve
VERIFICATION PLAN & RESULTS								rifi
TASK DIALOGUE SETTINGS		Visual Verification Plan	Visual Results	Data Verification Plan	Data Results	Status	Discussion	ica
Header Param eters								tio
Тіддег	On Command	Does the Mission Editor indicate that the ClearRoom process is triggered on command?	S	N/A.	NA.	Gren (Passed)	The free learn moves in the formation, enters the building, and makes it way for ward the being paded stack (positions; Each member on the team elects a positions; Each member of the same team member may not choose the same team member may not choose the same team enter the runs, the same team the member may not choose the same team the member as are amed with two however! All members are amed with two fragmentation organises, so the learn moves into the door always throws a member crosest to the door always throws the members. The maps of the beam moves into the electric may be the beam moves into the closet. In one fur, the team did not five a short free may worksheet is from this runs, the team and the enemy was not immediately apporently was not immediately apporently visually. The enemy's Damage status in all runs, the enemy as not immediately apporently visually. The enemy's Damage status in this character of their fraint positions and the task had ended (about 10 positions and the task had ended (about 10 positions and the sake had ended (about 10 positions and the sake had ended (about 10 positions and the positions and the task had ended (about 10 positions and the positions and the task had ended (about 10 positions and the	on Results, Scenario 1, Page 1.
rigger (Cont'd)	On Command	Does the Mission Editor indicate that the ClearRoom process is triggered on command?	Yes	N/A	N/A	Green (Passed)	This was also the case with the enemys icon on the screen-it changed from standing to prone at the time the Damage status was updated.	
WCS Summary	Free	W150	V 2 1 4	40.44	***			
Enable Reactions for this Task Required Parameters	o N	N/A	N/A	N/A	N/A	Unvermed		_
lone	N/A	N/A	N/A	N/A	N/A	Unverified		_
Optional Parameters					İ			_

Table 50. Clear Room Initial Verification Results, Scenario 1, Page 2.

		Given a "small" room to clear, does the team clear or skip the closet?	ne entire team enters and clears the oset.	N/A	N/A	Amber (Unable to Yerify)	mentioned that fire beams are not split in order to lear armal rooms. It is not known what criteria are used to determine whether at rooms to so mall to clear and whether the room to be cleared in this scenario would be considered too small for clearing.
Stack Positions	Yes	Are all four designated stack Y positions occupied by a team omember?	es, but in consecutive runs the rder of the team members in the tack may not be the same.	N/A	N/A	Amber (Unable to Yerfly)	Developer indicated that the stack order should be the same in each run of the same scenario.
Enemy Expected	Yes	Does the team member closest to the closet door throw a grenade into the closet?	88	N/A	N/A	Green (Passed)	
- Engagement	I se Default BOE						
General	Only	N/A	N/A		N/A	Unverified	
Weapon Control Status Fire Control Measures	Free N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	Unverified Unverified	
OTHER							
Stack Position Consistency Movement into Room	N/A Check	N/A 1. Does the fire team wait for the genade to detorate before entering? 2. Does the fire team follow the pattern illustrated in the U se Case?	N/A 1. Yes. 2. Yes to the extent that the closet's limited space allows.		N/A N/A	Orvernied Green (Passed)	
Grerade Status	Check	Since the lead entity in the stack threw a grenade, ches the rumbler of genades in his basic load decrease by 1?	The entity's Status window shows no decrease in the number of grenades.	N/A	NA	Amber (Unable to Verify)	If shots were fred, or a grenade was thrown, the run was allwed to continue several ammutes after the task ended. The Status windows or the entities were then checked to see If the ammunition levels were to updated. All ammon Lowest remained unchanged. This is amner but I appears to be an update enror, not an error specific to the elawort.
Enemy Engagement	Check	Do team members engage the enemy as they move towards their set positions in the room?	Out of three runs, no one fred a shot in one run, while shots were exchanged between the team and the eremy in the other two runs. The shots were fred as the team entered shoset.	N/A	N/A.	Amber (Unable to Verify)	
Other 5	N/A	N/A	N/A	N/A	N/A	Unverified	, ž
DATA COLLECTION							
DCST Input Filename	None						
Data Producers							
Data Element DC Sub-Category							
Name							
Output Filename	None						
			200 10 1001				
wo of the fire team's members. FIRE TEAM LEAD	TEAMLEADERTEN	d PIFLEWAN4, vere initally unamed. Therefore, em	Produined Position Position Position	added to their basic loads - each received 200 rounds of	. 6.56mm	Bail M193* and two "Grenade, Hand, Frag, M67	

Table 51. Clear Room Initial Verification Results, Scenario 2, Page 1.

General Scenario Description	A four-man fire tea	A four-man fire team is tasked to clear a room that it already finds itself in.	dy finds itself in.				
General Terrain Description	The scenario occurs entirely inside	rs entirely inside the building.					
Scenario Path∖Filename	Linux2 scenarioftes	Linux2 scenario/tests/ClearRoom/Scenario2/Scenarioxml					
Analyst		Harold Yamauchi					
GENERAL SETTINGS							
Attacking Unit	General Type Echelon Specific Type	Infantry Fire Team unit/mr/COMBAT/INFANTRY/FT/FT10f2	antry Team 7FT1of2 Light Inf Plt RS IC.xml				
Enemy	General Type Echelon Specific Type	\(\frac{1}{2}\)	None N/A N/A				
OTHER SCENARIO CHARACTERISTICS	STICS						
Location of Fire Team wrt Room Room to Stack on Right	Inside Yes						
Stack Point Locations Stack Location wrt Doorway	N/A N/A						
Stack Consistency Excursion Multi-Room Scenario	0 0 N 2						
Room too Small Closet in Room (along Entry Path) Grenade Type	No No Fragmentary						
OVERALL VERIFICATION RESULTS Seenario Verification Status	12	Amber					
Summary		The fire team was expected to leave the doorway to leave the room; the individ	the room, assemble the stack by the c dual combatants went through walls to	Joonway, and then re-enter the room. TI reach the adjoining hallway. Second, is	The fire team was expected to leave the room, assemble the stack by the dooway, and then re-enter the room. The team followed these procedures, however, two problems were observed. First, the team did not use the dooway to leave the room, the individual combarants went through walls to reach the adjoining hallway. Second, in consecutive runs, team members did not stack in the same order.	ever, two problems were or stack in the same orde	bbserved. First, the team did not use the r.
VERIFICATION PLAN & RESULTS							
TASK DIALOGUE SETTINGS		Visual Verification Plan	Visual Results	Data Verification Plan	Data Results	Status	Discussion
Header Parameters							
Trigger	On Command	Does the Mission Editor indicate that the ClearRoom process is triggered on command?	% }	V/V	N/A	Green (Passed)	In general, the fire team leaves the room for the adjoint labelay. The deam member assemble near the room's dooway and, since no stack positions were specified, from a stack to the eight of the door. (In consecutive uns, the same team member may not be in the same position in the stack, however, I Since not energy was stack, however, I Since not energy was expected, the team does not throw a grenade into the room. The team members either the room. The team members either the room. The teak ends when after the room. The teak ends when all team members occupy their positions in the room. The task ends when all team members occupy their positions
WCS Summary Enable Reactions for this Task	Free	N/A	NA	N/A	N/A	Unverified	
Required Parameters	$\ \ $						
None Optional Parameters	ΝΆ	N/A	N/A	N/A	N/A	Unverified	
continue : manage							

Table 52. Clear Room Initial Verification Results, Scenario 2, Page 2.

Room ID	, Y 685	Does the fire team exit the room to the adjoining hallway and then re- enter the room?	Yes, but see Discussion	NA	N/A	Amber (Unable to Verify)	When the team left the room, not a single member used the door to get to the hallway. In one run, three of the members approached the offer both them went through a went through a wall to enter an adjoining room and then moved away from the door and went members and in this set in a second run, this was repeated but it invoked away from the door and went through a wall to directly get into the hallway. In a second run, this was repeated but it moved wor. This is among away from the door and went from the foot. This is among away from the door and the more and the door and the more applicable to the popears it is an enrow with the environmental
Stack Positions	oN N		Yes, but in consecutive runs the order of the team members in the stack may not be the same.	N/A.	N/A	Amber (Unable to Verify)	Developer indicated that the stack order Amber (Unable to Verify) should be the same in each run of the same scenario.
Enemy Expected	oN	be thrown into ase?	Yes	Y/N	N/A	Green (Passed)	
Rules of Engagement							
General	Use Default ROE N/A		N/A	N/A	N/A	Unverified	
Weapon Control Status	Free	N/A	NA	N/A	N/A	Unverified	
Fire Control Measures	N/A	N/A	N/A	V/A	N/A	Unverified	
OTHER Stack Position Consistency	NA	9/14	457	9	W.A	Invaritied	
Movement into Room	Check	s the fire team follow the pattern rated in the Use Case?		N/A	N/A	Green (Passed)	
Grenade Status	ΝΆ			NA.	NA	Unverified	
Enemy Engagement	ΝΑ	N/A	N/A	N/A	N/A	Unverified	
Other 5	ΝΆ			//A	N/A	Unverified	
DATA COLLECTION							
	None						
Data Element							
DC Sub-Category							
Output Filename	None						
OTF ON							
NOTES							

Table 53. Clear Room Initial Verification Results, Scenario 3, Page 1.

General Scenario Description	A five-man fire tear Position5) are prov	m is tasked to clear a room occupied b	y a single entity. The team is initially I	ocated inside a building. The room to boom is nown the same coordinate so they	e cleared is across a hallway from the roam are on too of each other. The fire team	om the team starts in. Fi	A five-man fire team is tasked to clear a room occupied by a single entity. The team is initially located inside a building. The room to be cleared is across a halway from the room the team starts in. Five stack positions (labelled Position1 through Position5 are not not of seam expects enemy inside the norm.
General Terrain Description	The scenario occur	The scenario occurs entirely inside the building.					
Scenario Path\Filename	Linux2 scenario/tests/Clea	Linux2 scenario/tests/ClearRoom/Scenario3/Scenario2.xml					
Analyst		Harold Yamauchi					
GENERAL SETTINGS							
Attacking Unit	General Type Echelon Specific Type	Inf Fire Unit/mr/COMBAT/INFANTRY/FT/FT	fantry » Team _SPF_Company_TeamA_Dismounte				
Enemy	General Type Echelon Specific Type	Nonco E entity/mr/NONCOMBATA	combatant Entity ANT/IC_With_Hand_Weapon				
OTHER SCENARIO CHARACTERISTICS	STICS						
Location of Fire Team wrt Room Room to Stack on Right	Outside N/A						
Stack Point Locations Stack Location wit Doonway	Too Close Together	ar					
Stack Consistency Excursion	No						
Multi-Room Scenario Room too Small	9 2 2						
Closet in Room (along Entry Path)	Yes Strin/Elash-Band						
orenade type	Statisticaling		7				
OVERALL VERIFICATION RESULTS Scenario Verification Status	S	Red					
Summary		The fire team was expected to leave the room it initially occu deared, and then enter that room after the grenade detonate movement rather than clearing a room. As the fire team enter were not decremented in the final round count of the entities were not decremented in the final round count of the entities.	the room it initially occupied for the e ter the grenade detonated. The team m. As the fire team enters the hallway und count of the entities.	djoining hallway. Next, the team was exidid everything outlined except throw the t, three members of the team will jump.	pected to stack in the hallway at the der grenade and this is the reason why this out of the building and enter the hallway	signated stack positions, s scenario failed. In addit by passing through build	The fire team was expected to leave the room it initially occupied for the adjoining hallway. Next, the team was expected to stack in the hallway at the designated stack positions, throw a stun grenade into the room to be netwern that come after the grenade detonated. The team of deverything outlined except throw the granade and this is the reason why this scenario failed. In addition, another anomaly occurred that is related to movement table that he fire team enters the hallway, three members of the team will jump out of the building and enter the hallway by passing through building's exterior wall. The shots that were fired were not decremented that this final round count of the entities.
VERIFICATION PLAN & RESULTS							
TASK DIALOGUE SETTINGS		Visual Verification Plan	Visual Results	Data Verification Plan	Data Results	Status	Discussion
Header Parameters		_			_		E MACCA CHE DAY WOLLD WAS A CASE OF THE CASE OF THE
T-1999er	On Command	Does the Misson Editor indicate that the GearRoom process is triggered on command?	s e > 1	NA	N/A	Green (Passed)	in general, the interstand meaves the room it initially occupies for the adjoining hellway in fills formation. The team members move towards the five designated stack positions which are all located at the same coordinate. They all converge onto the total coordinate helives in member of the team is armed with two stan grenades. Although enemy are expected in organized and armount in the team is ammed with two stan grenades. Although enemy are expected in organized and armount (Repeated units confirm this.) The team members enter the room's course that moving to their set positions in the room. Naville moving through the room's several team members engage the room's counties in the rollway. The first beam enters in appointated. Note As the first team enters the hallway, then study who entities in the formation (TM LDR and RPIELEMAN) enter the hallway through the doorway of the room they are beaunt after REILEMAN passes through the doorway, the remaining entities (CREINALDE, SAINERS) and RPIEC (SUNNER) suddenly jump out of the building and enter the hallway by passing through and enter the hallway wall. This anomally corriecting and manner and merch in an area. In min
WCS Summary Fnable Reactions for this Task	Free	N/A	N/A	N/A	N/A	Illnvarifiad	_
Required Parameters	2	100			1000	5	
None	N/A	N/A	NA	N/A	N/A.	Unverified	

Table 54. Clear Room Initial Verification Results, Scenario 3, Page 2.

Optional Parameters								_
Room ID	99.	Does the team clear the room?	Yes, but see Discussion.	N/A	NVA	Amber (Unable to Verify)	As the fire team enters the hallway, the first two entries in the formation (TM LDR and PRIFLEMAN) pener the hallway through the doorway of the room they are leaving. After RPIE EMAN basses through the doorway. Where remaining entries (GRENADIER. SINIPER and RPG eUNNERS suddenly Limm, out of the building and enter the hallway by passing through the buildings extend wall. This anomaly occurred in every tun. This is amber 10 is a same to build a same of the environmental representation, not the behavior itself.	Table 54
Stack Positions	Y 65	The five designated stack positions are placed at the same coordinate. Does each team member go to that coordinate when the stack is formed?	Yes	N/A.	Y/N	Green (Passed)	The Use Case does not mention whether a minimum distance must be maintained between stack positions. If there is no minimum distance, this function passes. Not sure if there is an anti-collision setting that should prevent this convergence at one point.	. Clear Ro
Enemy Expected	Yes	Does the team member closest to the doorway throw a stun grenade into the room?	No grenades were thrown.	N/A	N/A	Red (Failed)	The Developer mentioned that stun grenades could be thrown, only that their lehality affects are modelled, not their strunming effects. Three runs were completed, but no grenade was thrown in each run.	om Initial
General	Use Default ROE	N/A	N/A	N/A	N/A	Unverified		. V
01400 00000)W	Ould	V NO.			100	in the second		er
Weaport Cortrol Status	Pree	NVA	NIA	N/A N/A	N/A N/A	pelliaviiu		11
OTHER	¥.	V.	Y 7-1	- NA				ıc
Stack Position Consistency	NA	N/A	N/A	N/A	N/A	Unverified		at
Movement into Room	Check	Does the fire team follow the pattern illustrated in the Use Case?	Yes.	N/A	N/A	Green (Passed)		10n 1
Grenade Status	Check	No grenades were thrown, so this was not checked, however, see Discussion	N/A	N/A	N/A	Amber (Unable to Verify)	Shots were fired in all runs, Each run was allowed to contine several minuses after the task ended. The Status windows of the entities were then checked to see if the ammunition levels were updated. All ammo levels remained unchanged.	Kesuits, S
Enemy Engagement	Check	Do team members engage the enemy as they move towards their set positions in the room?	Yes	N/A	N/A	Green (Passed)		scena
Other 5	ΝΑ	N/A	N/A	N/A	N/A	Unverified		ır.
DATA COLLECTION	Osol							10 S
								, P
Data Element DC Sub-Category								ag
	anoN							e 2
lename	NOTE OF THE PERSON OF THE PERS							-
NOTES This scenario specified the use of stun grenades, but no one in the fire team we in the fire team's members, RFLEMAN and RPG GUNNER, were initially 2. Two of the fire team's members, RFLEMAN and RPG GUNNER, were initially 3. This scenario specified a room with a closet located along the path of at least o located along the expected paths of the team members. Therefore this part of the	un grenades, but nal EEMAN and RPG is a closet located alo	TTES This scenario specified the use of stun grenades, but no one in the fire team was armed with these. Therefore, in addition to "Grenade, Stun, JVB-1" were added to each team members basic load. No one carried fragmentary grenades. Two of the fire team's members, RFLEMAN and RPG-GUINNER, were initially unarmed. Therefore, in addition to the stun granades mentioned in Note 1, these two members each received 200 rounds of "5 45x30, Ball, TNB". This scenario specified a room with a closet located along the path of at least one of the fire team members. This was to test whether the team member would pause by the closet while moving to its set position. Although we found rooms with closets, none of the closets were along the expected paths of the team members. Therefore this part of the ClearRoom behavior could not be verified.	as armed with these. Therefore two "Grenade, Stun, JVB-1" were added to each team nember's basic load. No one carried fragmentary grenade unamed. Therefore, in addition to the stun grenades mentioned in Note 1, these two members each received 200 rounds of "5-45x39, Ball, TNBs are of the fire team members. This was to test whether the team member would pause by the closet while moving to its set position. Although we ClearRoom behavior could not be verified.	YB-1" were added to each team memb mentioned in Note 1, these two membs the team member would pause by the	'Grenade, Stun, JYB-I" were added to each beam member's basic load. No one carried fragmentary grenades the stun grenades memboned in Note 1, these two members each received 200 rounds of '5,45x39, Ball, 7NB''. as to test whether the team member would pause by the closet while moving to its set position. Although we frenfied.	ntary grenades. (39, Ball, 7N6". . Although we found rooms	with closets, none of the closets were	

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Table 55. Clear Room Initial Verification Results, Scenario 4, Page 1.

21							
Stack Position Consistency	Check	Do the team members position themselves in the stack in the same order regardless of where the team is initially located?	No	N/A	ANA	Red (Falled)	This is red here blc this scenario was designed specifically to test this condition. Other scenarios received an antiber for Stack Positions blc stack order is only one of many aspects tested in that criterion.
Movement into Room	Check	Does the fre team follow the pattern illustrated in the Use Case?	Yes, except in one Case 3 run, two of the team members were positioned of case the building.	NA	VN	Green (Passed)	In one Case 3 run, the one run in which the fire team engaged the enrow, the team followed the patient illustrated in the Use Case except the two Isam members furthest from the door Jumpout of the building to the positions shown in the image a three bottom of this worksheet. Since the patient was still context, the amber rating is reflected in the Room ID criterion above.
Grenade Status	N/A.	See Discussion for other ammunition expended.	N/A.	N/A	. N/A.	Unverified	Shots were fred in one Case 3 run. The run was allowed to confunus exert all muluss after the task ended. The Status windows of the entities were then checked to see if the ammunition levels were updated. All ammo levels remarked unchanged.
Enemy Engagement	Check	Do team members engage the enemy as they move towards their set positions in the room?	No engagement occurs in any of the Case 1 and Case 2 runs. Only one run in Case 3 had an engagement.	NA	YN	Red (Faired)	Times runs were complicated to each case resulting in a total of nine runs. The first learn never engaged the enemy in the times runs made for Case I and the time runs made for Case 2. The team engaged, and the reach of the enemy in one of the time runs made for Case 3.
Other 5	N/A	N/A	N/A	N/A	N/A	Unvenfied	100
DCST Input Filename N	lone						
Data Producers							
Data Element DC Sub-Category							
Name							
Output Filename	lone				8	ā	
NOTES							
This scenario specified that the individual combatant at the lead of the statementers will line up in the stack in the same order from run run this effect for every run, it was decided to into eary tragmentary in stutler leads to read out a feet and the read of the team. FT-LDR-4C1, was untiller leads to had been assist loads. The fourth member of the team. FT-LDR-4C1, was untiller.	I combatant at the I the same order from the same order from the	ead of the stack was not to carry fragme om run to run. The affect of the lead IC n rentary or stun grenades carried by the t C1 was unarmed and remained unarme	entary or stun grenades. This assumed to not having grenades should be the same team. Three of the fire team's members, ed.	hat stack order would be maintained fin as when all of the ICs in the stack don AR M249-IC2, GRENADIER-IC3 and	om run to run and case to case, but as pr t carry grenades, the fire beam enters the ANTIARMOR-ICT4, were initially armed w	evious scenarios have sho room without the benefit o vith two "Grenade, Hand, F	This scenario specified that the individual combatant at the lead of this stack was not to carry fragmentary or stun grerades. This assumed that stack would be maintained from nun to run and case to case, but as previous scenarios have, there is no guarantee that the free team members will line up in the stack in the stack in the stack in the stack would be made as the same as when all of the ICs in the stack in the stack in the same order from run bron. The affect of the lead in order to preserve this affect of the lead in order to preserve the same order from run bron. The affect of the team. Three of the fire item's members, AR M24HC2, GRENADIER-LC3 and ANTIARMOR-LCT4, were initially armed with two 'Grenade, Hand, Frag, M67 each. These were removed from their basic loads. The fourth member of the basin. FTAD-RC1, was unamed and removed from
			*			*	

Table 56. Clear Room Initial Verification Results, Scenario 4, Page 2.

Secure 15 and	General Scenario Description	A four-man fire tean assemble the stack if the team consister	n is tasked to clear a room in a multi-stor to the right side of the door, but there is ntly stacks in the same order. In the first	ny building. The room is located on the fi room to the left of the door. The team e: t.case, the team starts north of the buildin	irst floor on the southeast comer and is xpects enemy inside the room. Three c: ng, enters the building through the north	occupied by a single opposing entity. T ses are considered where all variable: doorway, and approaches the target r	he fire team is not provided as are fixed except the starting oom from the north. In the se	A four-man fire team is tasked to clear a room in a muth-story building. The room is located on the first floor on the southeast comer and is occupied by a single opposing entity. The fire team is not provided stack positions and there is no room to the fire the fire for the clear that the south of the fire that the fire the device of the team stats not only the fire that the first case, the team stats south of the funding through the north doorway, and approaches that that proof north, in the scenario each of sea, the team stats south of the funding through the north doorway, and approaches that the first case, the team stats south of the funding through the north of the fund	
Free Command The scenario occurs primarily of Secretario Cestical Around Secretario Cestical Around Secretario Cestical Around Secretario Cestical Type Echilon Secretario Cestical Type Command No. 1		building, enters the approaches the targ	building through one of the south doorw get room from the west.	rays, and approaches the target room fro	om the west. In the third case, the team	starts on the second floor, moves down	ı the stairwell to thte first floo	ır, and when it exits the stairwell,	
Linux2 servinotesticolerization	General Terrain Description	The scenario occur	s primarily on the ground floor of the buil.	lding.					_
Control Type	Scenario Path\Filenam e	Linux2 scenario/tes. Scenario1.xml, and	ts/ClearRoom/Scenario4/Scenario.xml, Scenario2.xml for, respectively, Case						
Control Type Cont	Analyst	2000	Harold Yamauchi						
CHRACTERISTICS CHRONIC Type CHRACTERISTICS CHRACTERISTICS CHRACTERISTICS CHRACTERISTICS CHRACTERISTICS CHRACTERISTICS CHRACTERISTICS CHRACTERISTICS CHRACTERISTICS CHRACTERISTICS CHRACTERISTICS	GENERAL SETTINGS								
Specific Type	Attacking Unit	General Type Echelon	置置	ntry (Mech) Team					
Command Comm		Specific Type		/FT/FT_A_Mechinf_IC_US.xml					-
NEACTERSTICS	Enemy	General Type Echelon	EXCELLEGE THE THE CONTRACT OF	000					
Mark CTE RISTICS		Specific Type	TINCOMBAITINFANIRY	Loaded OFFOR					
No. No.	OTHER SCENARIO CHARACTERIS	TICS							
NN A NN A NN NO NO NO NO NO NO NO	Room to Stack on Right	No							
The first is Task No Command The first is Task No Command The first is Task No Command The first is Task No No The first is Task The first	Stack Point Locations Stack Location wrt Doorway	N/A N/A							
INGS SEESULTS AND Greenades The first is members THINGS THINGS THINGS On Command the Clear On Command	Stack Consistency Excursion Multi-Room Scenario	Yes							
The free ten members and stack in the Command in stack in Command	Room too Small Closet in Room (along Entry Path)	9 <u>0</u>							
The free tends of the free tends of the following the stack of	1000	No Grenades							
The fire to members The fire to members	OVERALL VERIFICATION RESULTS								
TINGS TINGS TINGS TO Command the Clear to no comman	scenario Verification status		Red		13				
TINGS TINGS Wisual Verification Plan Wisu	Summary		The fire team has a consistent problen members in the room. The image at thin not stack in the same order and that str.	n engaging the enemy when it enters the le bottom of this worksheet shows the fir tack order was not maintained when the	e room. Of nine runs (three runs for eac nal positions taken by the team. Two of, fire team's inital location was changed.	n case), the fire team engaged the ene he positions fall outside the building.In	my just once. In that run, the addition, it was observed tha	re was a problem postioning the team at in consecutive runs, team members did	
Tindos Tindos Tindos On Command Interception Plan Visual Results Data Verification Plan On Command Interception process is triggered or command? Free NuA									
Does the Mission Editor indicate that Yes on Command the ClearRoom process is triggered Yes No Alar Nuk	VERITION PLAN & RESOLIS		Visual Verification Plan	Visual Results	Data Verification Plan	Data Results	Status	Discussion	
Does the Mission Editor indicate that ves in the Charafrong process is triggered ves in the Charafrong process is triggered ves in the Charafrong process is triggered ves in the Charafrong ves into th	TASK DIALOGUE SETTINGS Header Parameters								_
Free	Тладег	On Command			NA	N/A	Green (Fassed)	In all three cases, when the fire team reaches the found, is also found, fastos to the fire of the door. The team expects enemy misde the room, but no one on the team carries hand grenades (see Notes), so the team enters the norm without the benefit of using a grenade. The team mere rangages the enemy in every run made for Case 1 and 2. The team engages the enemy in one of three urns made for Case 3 and three urns made for Case 3 and characteristics the enemy.	
NIA	WCS Summany	Free							
NJA	Enable Reactions for this Task	No		N/A	N/A	N/A	Unverified		
Yes Does the team clear the proper room? Yes. There is not enough room to the right yes in all three cases, but the order of the donney Does the team members in the stack may NA the left of the donney. Does the team members in the stack may NA team stack to the left of the donney. Ones the left of the donney. Ones the left of the donney. Ones the left of the donney. Only NA	None	N/A		N/A		NA	Unverified		_
There is not enough room to the right Yes in all three cases, but the order of of the doorway, but there is room to the earn members in the stack may NIA the effort the doorway. Does the tense are from run to run. NIA NIA	Option al Param eters Room ID	, kes	Does the team clear the proper room?	√ 85.	NA	N/A	Amber (Unable to Verify)	In one Case 3 run, the one run in which the fire team engaged the enemy, bot earn members furthest from the door Jump out of the building to the positions shown in the image at the bottom of this worksheet. This is andre but it appears it is an out with the environmental representation, not the	,
Yes This was not verified (See Notes) N/A N/A Use Default ROE Only Free NA N/A N/A	Stack Positions	<u>.</u>	There is not enough room to the right of the donway, but there is room to the left of the doorway. Does the team stack to the left of the doorway?	Yes in all three cases, but the order of the team members in the stack may not be the same from run to run.	N/A	NIA	Amber (Unable to Verify)	Developer indicated that the stack order should be the same in each run of the same scenario.	_
Use Default ROE N/A N/A N/A Only Free N/A N/A	Enemy Expected	Yes	This was not verified (See Notes).	N/A	N/A	N/A	Unverified		
Control Status Free N/A N/A N/A	Suran and and and and and and and and and a	Use Default ROE	NIVA			VIV	to object on the		_
FIEE N/A	General	Only	N/A N/A			N/A N/A	Unvertied		-
Fire Control Messures N/A N/A N/A N/A N/A	Fire Control Measures	N/A	N/A	N/A	N/A	N/A	Unverified		_

Table 57. Clear Room Initial Verification Results, Scenario 5a, Page 1.

General Scenario Description	A four-man fire tea and the Phase 2 is	m is tasked to clear two rooms. The mis evaluated as Scenario 5b. For Phase 1	sion is divided into two phases where no room is specified, stack positions	the team clears the first room during P are not provided, and no enemy is exp	ase 1 and then clears the second room ected. The fire team is initially located in	during Phase 2. Phase a hallway and no opposi	A four-man fine team is tasked to clear two rooms. The mission is divided into two phases where the team clears the first room during Phase 1 and then clears the second room during Phase 2. Phase 1 is evaluated as Scenario 5a (this scenario) and the Phase 2 is evaluated as Scenario 5b. For Phase 1, no room is specified, stack positions are not provided, and no enemy is expected. The fire team is initially located in a hallway and no opposing entities are present in the building.
General Terrain Description	The scenario occurs entirely inside	rs entirely inside the building.					
Scenario Path\Filename	Linux2 scenario/tests/Clea	Linux2 scenario/tests/ClearRoom/Scenario5/Scenario1.xml					
Analyst		Harold Yamauchi					
GENERAL SETTINGS							
Attacking Unit	General Type Echelon	1 15	DM Infantry (Mech) SAT# IA INIT INITERITE THE DISCOURSE LIA INIT TALI LIA I				
Enemy	Specific Type General Type Echelon Specific Type	NO NOT SELECT ON	None N/A N/A N/A				
OTHER SCENARIO CHARACTERISTICS	STICS						
Location of Fire Team wrt Room	Outside						
Room to Stack on Right Stack Point Locations	Yes N/A						
Stack Location wrt Doorway Stack Consistency Excursion	N/A No						
Multi-Room Scenario Room too Small Closet in Room (along Entry Path)	X o N O N O N O N O N O N O N O N O N O N						
Grenade Type	Fragmentary						
OVERALL VERIFICATION RESULTS Scenario Verification Status	S	Red					
Summary		When a room is not specified, the fire	team is expected to clear the room wi	th the closest doorway. However, the to	is not specified, the fire team is expected to clear the room with the closest doorway. However, the task cannot be triggered unless a room is specified. No further verification of this scenario was made	specified. No further ver	ification of this scenario was made.
VERIFICATION PLAN & RESULTS							
TASK DIALOGUE SETTINGS		Visual Verification Plan	Visual Results	Data Verification Plan	Data Results	Status	Discussion
Header Parameters							
Trigger	On Command	Does the Mission Editor indicate that the ClearRoom process is triggered on command?	<u>8</u>	NJA	N/A	Red (Failed)	Unless a room is specified in the ClearRoom delate, this task cannot be ingegred. There is a discrepancy between the Use Case and the ClearRoom dialog. The Use Case says the RoomID is a mandatory input while the dialog treats the RoomID as an optional input.
WCS Summary	Free	NICA	NICA	NIA		I less confidence la	
			()	Car		000000	
None Ontional Baramatara	N/A	N/A	NA	N/A	N/A	Unverified	
Room ID	oN.	Does the fire team clear the room with the closest doorway?	Unable to verify because the task cannot be triggered	WA	N/A	Unverified	
Stack Positions	Ŷ.	Does the fire team stack to the right of the closest doorway if there is room? If there isn't enough room, does the team stack to the left?	Unable to verify because the task cannot be triggered	N/A	N/A	Unverified	
Enemy Expected	No	A grenade should not be thrown into the room. Is this the case?	Unable to verify because the task cannot be triggered	N/A	N/A	Unverified	
Rules of Engagement		-		_	•		
General	Use Default ROE Only	N/A	NA	N/A	N/A	Unverified	

Table 58. Clear Room Initial Verification Results, Scenario 5a, Page 2.

Weapon Control Status	Free	N/A	4/N	A/A	N/A	Unverified	
Ciro Control Moseuros	l				975.0	Lowerified	
THE COILING MEASURES	¥.	N.A.	¥≥	N/A	MA	nallian	
OTHER							
Stack Position Consistency	N/A	N/A	N/A	N/A	N/A	Unverified	
Movement into Room	Check	Does the fire team follow the pattern illustrated in the Use Case?	Unable to verify because the task cannot be triggered	4 VIV	N/A	Unverified	
Grenade Status	N/A	N/A	4/Z		N/A	Unverified	
Enemy Engagement	N/A	N/A	N/A	N/A	N/A	Unverified	
Other 5	N/A	N/A	N/A		N/A	Unverified	
DATA COLLECTION							
ame	None						
Data Producers							
Data Element							
DC Sub-Category							
Name							
Output Filename	None						
NOTES							

Table 59. Clear Room Initial Verification Results, Scenario 5b, Page 1.

General Scenario Description	This is the second Position1 through F	This is the second phase of a two-phase mission. The first phase was evaluated as Scenario 5a and this phase will be evaluated as Scenario 5b. For the second phase, the fire team is tasked to clear a room. Four stack positions (labelled Position4) are specified and are placed a distance from the room's doorway. The fire team expects enemy inside the room although there are actually no opposition entities in the building.	phase was evaluated as Scenario 5s a distance from the room's doorway.	and this phase will be evaluated as Sc The fire team expects enemy inside the	enario 5b. For the second phase, the fir room although there are actually no opp	e team is tasked to clear osing entities in the buil-	a room. Four stack positions (labelled ding.
General Terrain Description	The scenario occurs entirely inside	urs entirely inside the building.		-			
Scenario Path\Filename	Linux2 scenario/fests/ClearRoom/Scenari	sarRoom/Scenario5/Scenario1.xml					
Analyst		Harold Yamauchi					
GENERAL SETTINGS							
Attacking Unit	General Type Echelon Specific Type	DM Infanti Fire T Unit/mr/COMBAT/UA INF UNITS/FT/	nfantry (Mech) Fire Team SFT/FT Infantry Dismounts UA INF PL				
Enemy							
OTHER SCENARIO CHARACTERISTICS	TICS						
Location of Fire Team wrt Room	Outside						
Room to Stack on Right Stack Point Locations	N/A Not Too Close Together	dether					
Stack Location wrt Doorway	Too Far from Doorway	nway					
Multi-Room Scenario	Yes						
Room too Small	oN.						
Closet In Koom (along Entry Mam) Grenade Type	No Fragmentary						
		ſ					
OVERALL VERIFICATION RESULTS Scenario Verification Status	_ω	Amber					
Summary		The fire team approached the room ar doesn't reach the room and insteac or	nd each team member occupied one eates a breach in the wall. The team	of the designated stack positions. A greentered the room after the grenade detended	nade was thrown down the hallway tow. tonated. It was observed that in consect	ards the room despite the	The fire team approached the room and each team member occupied one of the designated stack positions. A grenade was thrown down the halway towards the room despite the stack's distance from the room. The grenade deporated it was observed that in consecutive runs, the team members did not stack in the same order. The
		round count was not decremented to account for the thrown grenade	account for the thrown grenade.				
VERIFICATION PLAN & RESULTS							
TASK DIALOGUE SETTINGS		Visual Verification Plan	Visual Results	Data Verification Plan	Data Results	Status	Discussion
Header Parameters							
Trigger	On Command	Does the Mission Editor indicate that the Clearfroum process is triggered on command? Note. This itsek was supposed to be triggered "Upon Completion of Previous" but the imited phase would not execute at all phase would not execute at all thus, this was switched in "On Command" in order to allow us to test the other conditions within this scenario.	\$ \tag{\tau}	W.	NA	Gren (Passed)	Since the first phase cannot be triggered, the free farm never mose from its initial location in the halvagy. When the second phase is triggered, the team simply moves down the halvagy in fill charation towards the designated stack formation towards the designated stack formation. Each member of the team selects a position in the stack. (The same learn member does to go the team member does to be used to so the team member does to the team of the part of the and the same stack position in the stack. The same stack position in the stack. The same start position in the hallways throws a grenade down the hallways throws a grenade down the hallways throws a grenade down the hallway creating a breach hole in the wall water the form the door, the grenade does must be found in the wall moves muo the form. The image at the wall moves muo the found in the mage at the team of their final positions. The breach hole can also be seen between Position in and the door. See the inserted graphic below.
WCS Summary	Free						
Enable Reactions for this Task	o _N	N/A	NA	N/A	N/A	Unverified	
None	N/A	N/A	N/A	N/A	N/A	Unverified	
Optional Parameters	× × ×	Concess of was also see 44 as a C		83.14	* STR	(Posses)	
K00ffi 12	92	Ξl	i es	INA	IN/A	Oleen (Fassed)	

Table 60. Clear Room Initial Verification Results, Scenario 5b, Page 2.

Stack Positions	Yes	Are all four designated stack positions occupied by a team member?	Yes, but in consecutive runs the order of the team members in the stack may not be the same.	N/A	N/A	Amber (Unable to Verify)	Developer indicated that the stack order should be the same in each run of the same scenario.
Enemy Expected	Yes	to the	The beam member throws a grenade from his stack position, but because of his his stack position, but because of his distance from the downway, the grenate dosent reach the room and it detonates in the hallway, creating a breach hole in the wall.	N/A	NIA	Green (Passed)	It appears that if a grenade needs to be available, town and the lead in the stack has one available, it will be thrown from the lead's location regardess of where the team stacks from the doorway, if this is the intent, then this passes. Since this isn't specified, this criterion is Oreen.
Rules of Engagement							
General	Use Default ROE	N/A	N/A	N/A	N/A	Unverified	
or total Cotons Conscious	Chros				310	Los Aprovação II	
weapon Control Status Fire Control Measures	N/A	N/A	N/A	N/A	N/A N/A	Unventied	
OTHER Stack Position Consistency	Ø/N	\$10	4/N	472	477	Invoited	
Movement into Room	Check	1. Does the fire team wait for the grande to debnate before entering? 2. Does the fire team follow the pattern illustrated in the Use Case?	1. Yes. 2. Yes.	N/A	NA	Green (Passed)	
Grenade Status	Check	Since the lead entity in the stack threw a grenade, does the number of grenades in his basit, load decrease by 1?	The entity's Status window shows no decrease in the number of grenades.	Y/N	NVA	Amber (Unable to Yenfy)	Each run was allowed to continue several minutes after the task ended. The Status mindow of the laste entity was then checked to see if the grenade count was updated. The amount remained unchanged. This is amount remained unchanged. This is amount of the grenast to be an update error, not an error specific to the behavior.
Enemy Engagement	N/A	N/A		N/A	NA	Unverified	
Other 5	N/A	N/A	N/A	N/A	N/A	Unvertied	
DATA COLLECTION							
DCS I Input Hiename Data Producers	None						
Data Element							
Name							
Output Filename	None						
NOTES							
Two of the fire team's members, FT LDR1 and Rifleman4, were initially unarmed.	.DR1 and Rifleman4	ı⊢ I	herefore, ammunition was added to their basic loads - each received 200 rounds of "5.56mm, Ball, M193" and two "Grenade, Hand, Frag, M67	s - each received 200 rounds of "5.56m	m, Ball, M193" and two "Grenade, Har	nd, Frag, M67".	
			Position 1		Level 1		s, scenario 30, 1 age 2.

Appendix D - List of References

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Appendix E – **Initial Distribution List**

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5. Dudley Knox Library Naval Postgraduate School Monterey, CA 93943 This page intentionally left blank.

Glossary of Acronymns

AMSAA US Army Materiel Systems Analysis Activity

AUTL Army Universal Task List

BLUFOR Blue Forces

BPD Behavior Process Document
CGF Computer Generated Forces

DMSO Defense Modeling and Simulation Office

FARP Forward Area Refueling Point

FWA Fixed Wing Aircraft

GAT Government Acceptance Testing

GUI Graphical User Interface

HQDA Headquarters, Department of the Army

HVIED Human/Vehicle-borne Improvised Explosive Device

I/ITSEC Interservice / Industry Training, Simulation, and Education Conference

KAKE Knowledge Acquisition / Knowledge Engineering

LRP Logistics Release Point

M&S Modeling and Simulation

MB Megabyte

MEDEVAC Medical Evacuation

OneSAF One Semi-Automated Forces
OOS OneSAF Objective System

OPFOR Opposing Forces
PM Product Manager

PSD Process Step Descriptions

PVD Plan View Display

RWA Rotary Wing Aircraft

SAIC Science Applications International Corporation

SME Subject Matter Expert

TD Task Description

TRAC TRADOC Analysis Center

TRAC-MTRY TRAC in Monterey, California

TRAC-WSMR TRAC at White Sands Missile Range, New Mexico

TRADOC US Army Training and Doctrine Command

US United States

VV&A Verification, Validation, and Accreditation

WCS Weapons Control Status

XML Extensible Markup Language